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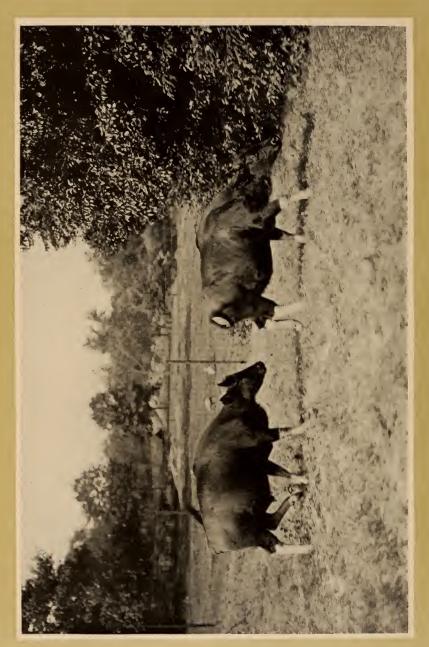


THIRTY-THIRD ANNUAL REPORT OF THE

New York Zoological Society



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1895

CITY OF NEW YORK

New York Zoological Society

Founded in 1895 for the establishment of the Zoological Park; conservation of the animal life of the world--fishes, mammals, birds; promotion of zoology through exploration and publication; and, in 1900, the direction of the New York Agnarium in Battery Park



THIRTY-THIRD ANNUAL REPORT

Address, Director, W. Reid Blair, Zoological Park, 185th Street and Southern Boulevard; Director, Charles H. Townsend, Aquarium Battery Park; Secretary, William White Niles, 101 Park Avenue.

Published at the Office of the Society, 101 PARK AVENUE, NEW YORK, N. Y.

JANUARY, 1929

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ILLUSTRATIONS

The Zoological Park

GREVY ZEBRA

CALIFORNIA SEA-LION

KARTOUM

PUNJAB SHEEP

PUNJAB SHEEP AND LAMB

PORTION OF ALLIGATOR POOL

GIANT HORNED TOAD

CALIFORNIA SEA-LION

KARTOUM

NEW REFRESHMENT BUILDING

GREATER KUDU

AUSTRALIAN CRANE

KAGU

AMERICAN PRONG-HORNED ANTELOPE

The New York Aquarium

MODEL FISH LADDER

CAST NET

ARRIVAL OF COLLECTIONS

FEEDING FISHES

U. S. F. ALBATROSS II

JEWFISH

SMALLEST GALAPAGOS TORTOISE

TOWING LIVE CARS

TORTOISES IN THE PARK

Department of Tropical Research

WILLIAM BEEBE IN DIVING HELMET

TWO-FOOT BARRACUDA

FISHING A MILE DOWN

LONG-FANGED VIPER-FISH

AMAZONIAN WING-FISH

TRANSPARENT BODY OF WING-FISH

Acanthemblemaria arborescens, sp. nov.

Cremnobates argus, sp. nov.



New York Zoological Society

Membership

Membership.—Membership in the Zoological Society is open to all who are interested in the objects of the organization and desire to contribute toward its support.

Classes.—Annual Membership is \$10. This entitles the holder to admission to the Zoological Park on pay days, when the collections may be seen to the best advantage, all publications of the Society, privileges of the Administration Building, lectures, special exhibitions, and ten complimentary tickets to the Zoological Park for distribution.

Annual Members may become Life Members by the payment of \$200; a subscriber of \$1,000 becomes a Patron; \$2,500, an Associate Founder; \$5,000, Founder; \$10,000, a Founder in Perpetuity, and \$25,000 a Benefactor.

Applications for Membership should be sent to William White Niles, Secretary, N. Y. Zoological Society, 101 Park Avenue, New York, N. Y.

Form of Bequest

I	do	hereby	give	and	beq	ueath	to	the	"Nev	v Yo	RK	Zooi	LOGIC	CAL
Societ	ΓY,"	of the	City	of N	'ew	York,						• • • • •	• • • •	
										• • • •		• • • • •		
							• • •						• • • •	

Address, Cornelius R. Agnew, Treasurer 22 William Street, New York, N. Y.



New York Zoological Society Organized 1895

Aresidents							
I.	Andrew H. Green	1895 to 1897					
II.	LEVI P. MORTON	1897 to 1909					
III.	HENRY FAIRFIELD OSBORN	1909 to 1925					
IV.	MADISON GRANT	1925					
т	First Vice-Presidents	1005 / 1007					
I.	J. HAMPTON ROBB	1895 to 1897					
II.	HENRY FAIRFIELD OSBORN	1897 to 1909					
IV.	SAMUEL THORNE	1909 to 1916					
V.	MADISON GRANT	1916 to 1925 1925					
٧.	Frank K. Sturgis	1923					
	Second Vice-Presidents						
I.	CHARLES H. WHITEHEAD	1895 to 1902					
II.	JOHN L. CADWALADER	1902 to 1915					
III.	Madison Grant	1915 to 1916					
IV.	Frank K. Sturgis	1916 to 1925					
V.	HENRY D. WHITON	1925					
Treasurers							
I.	L. V. F. RANDOLPH	1895 to 1901					
II.	CHARLES T. BARNEY	1901 to 1903					
III.	Percy Rivington Pyne	1903 to 1922					
IV.	Cornelius R. Agnew	1922					
	Secretaries						
I.	MADISON GRANT	1895 to 1925					
II.	WILLIAM WHITE NILES	1925					
Chairmen, Executive Committee							
I.	CHARLES E. WHITEHEAD	1895 to 1896					
II.	Henry Fairfield Osborn	1896 to 1903					
III.	CHARLES T. BARNEY	1903 to 1908					
1V.	Henry Fairfield Osborn	1908 to 1909					
V.	Madison Grant	1909					
	Birectors						
I.		1896 to 1926					
	14/IIIIIANI HODNIADAY ZOOLOGICOL POPP						
- 11	WILLIAM T. HORNADAY, Zoological Park						
II.	WILLIAM 1. HORNADAY, Zoological Park CHARLES H. TOWNSEND, New York Aquarium W. REID BLAIR, Zoological Park	1902 1926					



Board of Managers

Ex-Officio | HON. JAMES J. WALKER, The Mayor.

City, New York | HON. WALTER H. HERRICK, The President, Dept. of Parks.

Class of 1930

Madison Grant
William White Niles
Frank K. Sturgis
Ogden Mills
Lewis Rutherfurd Morris
Archer M. Huntington

GEORGE D. PRATT
T. COLEMAN DU PONT
HENRY D. WHITON
CORNELIUS R. AGNEW
HARRISON WILLIAMS
MARSHALL FIELD

Class of 1931

PERCY R. PYNE
GEORGE BIRD GRINNELL
ANTHONY R. KUSER
MORTIMER L. SCHIFF
FREDERIC C. WALCOTT
GEORGE C. CLARK, JR.

W. Redmond Cross
Henry Fairfield Osborn, Jr.
George Gordon Battle
Bayard Dominick
Anson W. Hard
Robert Gordon McKay

Class of 1932

HENRY FAIRFIELD OSBORN GEORGE F. BAKER ROBERT S. BREWSTER EDWARD S. HARKNESS EDWIN THORNE IRVING K. TAYLOR HARRY PAYNE BINGHAM
LANDON K. THORNE
J. WATSON WEBB
OLIVER D. FILLEY
DE FOREST GRANT
H. DE B. PARSONS

Officers of the Society

General Offices, 101 Park Avenue, New York, N. Y.

President: MADISON GRANT,

Honorary President: HENRY FAIRFIELD OSBORN,

First Vice-President: FRANK K. STURGIS,

Second Vice-President: HENRY D. WHITON.

Secretary: WILLIAM WHITE NILES, 101 Park Avenue, Treasurer: Cornelius R. Agnew, 22 William Street, Assistant Treasurer: The Farmers' Loan & Trust Company.

Executive Committee

MADISON GRANT, Chairman

PERCY R. PYNE,
WILLIAM WHITE NILES,
FRANK K. STURGIS,
ANTHONY R. KUSER.

HENRY D. WHITON, W. REDMOND CROSS, HENRY FAIRFIELD OSBORN, JR., BAYARD DOMINICK,

CORNELIUS R. AGNEW, Ex-officio.

General Officers

W. REID BLAIR, Director, Zoological Park,
WILLIAM T. HORNADAY, Director Emeritus,
CHARLES H. TOWNSEND, Director, New York Aquarium,
H. C. RAVEN, Prosector,
H. DE B. PARSONS, Consulting Engineer,
R. L. CERERO, Bursar,
HERMANN W. MERKEL, Consulting Landscape Architect,

Pension Board

Lewis Rutherfurd Morris, Chairman, Cornelius R. Agnew, Treasurer, Lee S. Crandall, Secretary,

W. REID BLAIR, H. R. MITCHELL, GEORGE BIRD GRINNELL, W. REDMOND CROSS, CHARLES H. TOWNSEND, GEORGE C. CLARK, JR.

Committees of the Society

Finance Committee

FRANK K. STURGIS, Chairman.

GEORGE C. CLARK, JR.,

PERCY R. PYNE,

W. REDMOND CROSS, CORNELIUS R. AGNEW, Ex-officio.

Anditing Committee

WILLIAM WHITE NILES, Chairman.

George C. Clark, Jr.,

W. REDMOND CROSS,

MADISON GRANT, Ex-officio.

Art Committee
Frank K. Sturgis.

Aquarium Alteration Committee

FRANK K. STURGIS, Chairman.

HENRY D. WHITON, GEORGE GORDON BATTLE, CHARLES H. TOWNSEND, H. DE B. PARSONS,

MADISON GRANT, Ex-officio.

Editorial Committee

MADISON GRANT, Chairman.

W. REID BLAIR, WILLIAM BEEBE, CHARLES H. TOWNSEND, GEORGE BIRD GRINNELL.

ELWIN R. SANBORN, Secretary.

Nominating Committee for Officers and Committees

LEWIS RUTHERFURD MORRIS, Chairman.

GEORGE C. CLARK, JR.,

GEORGE BIRD GRINNELL

Nominating Committee for Board of Managers

WILLIAM TURNBULL, Chairman.

CHARLES DE RHAM,

CHARLES A. DANA.

Membership Committee

HENRY FAIRFIELD OSBORN, JR., Chairman.

ROBERT GORDON McKay, OLIVER D. FILLEY.

Publicity Committee

W. REID BLAIR, Chairman.

RAYMOND L. DITMARS, WILLIAM BEEBE,

CHARLES H. TOWNSEND, ELWIN R. SANBORN.

Executive Staff

Officers of the Zoological Park

W. REID BLAIR, Director and General Curator,
H. R. MITCHELL, Chief Clerk,
R. L. DITMARS, Curator, Mammals-Reptiles,
LEE S. CRANDALL, Curator, Birds,
CHARLES V. NOBACK, Veterinarian,
WILLIAM BEEBE, Honorary Curator of Birds,
WILLIAM MITCHELL, Cashier,
CHARLES RENNER, Civil Engineer and Constructor,
ELWIN R. SANBORN, Editor and Photographer.

Officers of the Aquarium

CHARLES H. TOWNSEND, Director,
CHARLES M. BREDER, JR., Research Associate,
MARVIN C. FENSTEMAKER, Secretary,
IDA MELLEN, Aquarist,
JAMES C. MOORE, Chief Engineer.

Officers of the Department of Tropical Research

WILLIAM BEEBE, Director,
JOHN TEE-VAN, General Assistant,
WILLIAM K. GREGORY, Scientific Associate,
WILLIAM MERRIAM, Field Technician,
GLORIA HOLLISTER, Technical Associate,
HELEN TEE-VAN, Artist,
ROBERT WHITELAW, Field Assistant & Photographer,
SERGE CHETYRKIN, Preparateur.

Staff, Arcturus Research Mork

WILLIAM K. GREGORY,
C. J. FISH,
M. P. FISH,
LEE BOONE,

H. P. BIGELOW, A. L. TREADWELL, C. H. CURRAN, S. H. WILLIAMS.





Prjevalsky horse and foal born in the Park.

REPORT OF

THE EXECUTIVE COMMITTEE

By MADISON GRANT, Chairman

THE Executive Committee submit the following report to the Board of Managers for the year 1928:

The only death occurring in the Board of Managers during the year was that of Mr. John E. Berwind, whose passing is a matter of regret to his associates. Mr. Berwind was a member of the Board of Managers of the Class of 1929 and his contributions to the Society had constituted him a Founder. He was a frequent attendant at the meetings of the Board and showed a sincere interest in the activities of the Society.

The Society suffered a severe loss in the death of Professor Bashford Dean, who was from 1902 to 1924, inclusive, a member of the Advisory Committee of the Aquarium.

Messrs. J. Watson Webb, Oliver D. Filley and Robert Gordon McKay were added to the Board of Managers during the year.

The outstanding event of the year financially was the receipt of the bequest of Mrs. Anna M. Harkness of \$1,000,000.00, which was paid in full without deduction of State or Federal Inheritance Tax through the generosity of Mr. Edward S. Harkness. Additional and final payments of \$11,190.92 and \$51,783.75 were received under the wills of Mr. Charles E. Rhinelander and Mrs. Margaret Olivia Sage. Mr. Edwin Thorne gave \$5,000.00 to the Society to be used in any way the Board of Managers might decide. This amount has been added to the General Fund.

The finances of the Society have steadily improved. It has been the steadfast purpose of the Executive Committee to proceed no faster than the Society's income permitted and to incur no obligations which should result in expenditures in excess of income and despite the very heavy payments necessary to meet the deficiency between the amounts appropriated by the Board of Estimate and Apportionment and the cost of maintaining the Park and Aquarium, the Society has closed each year with a surplus in its income account.

The present City administration has proved to be sympathetic with the needs of the Society and has appreciated the public interest taken in the collections of the Society. It increased its appropriations in 1928 for the maintenance of the Park and Aquarium, the former in the amount of \$42,100.50 and the latter in the amount of \$2,883.00. The Executive Committee desires to express its appreciation of this new attitude on the part of the City authorities. Further increases, however, are needed before the employees of the Society are on an equal pay basis with those of other institutions.

In addition to the budget figures, the Board of Estimate granted an extra allowance of \$19,565.00 to the Zoological Park and \$20,000.00 to the Aquarium. The former was expended in the new slate roof on the Reptile House which was very greatly needed and extensions of the boundary fence along the Boston Post Road from the West Farms entrance to the Bronx River; the latter in repairing the fire damage, relining the reservoir, replacing some old tanks and general repairs.

The Society, at its own expense, partially reconstructed the small Mammal House by eliminating some of the extremely small cages and substituting larger ones, which afford more comfortable accommodations for the animals and exhibit them to much greater advantage. The Flying Cage will have to be rebuilt or repaired in the near future and Mr. Parsons, the Consulting Engineer of the Park, has examined and reported on its condition. An application will be made to the City for the money to do this work.*

Substantial improvements, including a modern ventilation system, have been ordered for the Primate House and the Director of the Park has been authorized to prepare plans for same and the work will be carried out during the coming year at the Society's expense.

The following new buildings could be added to those already existing at the Park to its great advantage: an Auditorium, which could be used for lectures in connection with the proposed educational work in the public schools; a Parrot House which would permit of exhibiting the parrots apart from the other birds and an up-to-date Ape House for the exhibition of the Society's exceptional collection of anthropoid apes.

The Society's collections have been maintained up to the standard of the past and some interesting additions have been made, the most im-

^{*} This has since been granted.

portant being a fourteen months' old gorilla from the Cameroun Country, a banting purchased and presented to the Society by the Junior Auxiliary and two lion cubs and a baby giraffe born in the Park. The gorilla was secured through the interest of Mr. W. Reginald Wheeler of the Presbyterian Board of Missions and not through a dealer, as it has been the policy of the Society to discourage the collection by dealers.

The following subscriptions were made to the 1928 Tropical Research Fund:

Harrison Williams	\$1,000.00
Marshall Field	2,000.00
John E. Berwind	1,000.00
George D. Pratt	1,000.00
Mortimer L. Schiff	1,000.00
George F. Baker	1,000.00
Edward S. Harkness	1,000.00
	40,000,00
	\$8,000.00

During 1928 the following fund, known as the Galapagos Tortoise Fund, was raised for Dr. Townsend's expedition to the Galapagos Islands:

Anthony R. Kuser	\$2,000.00
Bayard Dominick	1,000.00
Irving K. Taylor	1,000.00
Anson W. Hard	1,000.00
Robert S. Brewster	1,000.00
Henry D. Whiton	1,000.00
	\$7,000.00

A Special Publication Fund for the publication of the scientific results of Kartabo and the Galapagos Expedition of the Tropical Research Department was raised during 1928 by the following subscriptions:

Mortimer L. Schiff	\$500.00
Harrison Williams	500.00
John E. Berwind	500.00
Ogden Mills	500.00
Edward S. Harkness	500.00

Clarence Dillon	
Dr. Lewis R. Morris	
Marshall Field	
S. H. Williams	50.00
	\$2,950.00

During this year the Society sent out a number of expeditions. Director Townsend made a trip to the Galapagos Islands with a view to obtaining definite information as to the extent to which the tortoises were being exterminated and the purpose of bringing back specimens with a view to colonizing them where they might be protected and propagated. His expedition was unusually successful as he succeeded in locating and bringing back 181 living specimens of Giant tortoise, establishing colonies at Summit, Panama Canal Zone; San Diego, California; Superior, Arizona; Houston and San Antonio, Texas; New Orleans, Louisiana; Coral Gables, Florida, and the Bermuda Islands. All specimens being numbered with copper tags, measured and weighed. All colonies have been fairly successful though it seems probable that the climate of Arizona, Texas and New Orleans is too cold for the animals and a location for the tortoises will have to be found in southern Florida or some of the adjacent islands. The cost of the expedition barely exceeded \$10,000 which was allowed to cover the expense. This was largely due to the cooperation of the Federal Government through the Bureau of Fisheries in furnishing the Steamer Albatross II with its Captain and crew without cost to the Society, except for coal.

Mr. Ditmars made a trip to Tela, Honduras, in the interest of serum therapy as applied to snake bites, especially with a view to comparing methods in Central America with methods employed in Brazil, bringing back a number of Central American reptiles, some small mammals and some interesting motion pictures, showing the country visited and the development of snake serums.

Mr. William Beebe continued his activities by deep sea dredging in the so-called Hudson Gorge, reaching depths of a mile, bringing to the surface many interesting groups of deep sea fish.

Mr. Lee S. Crandall, Curator of Birds, was sent to Papua, New Guinea, on a bird collecting expedition, sailing for Sydney on the 14th of August. He was joined in Sydney by Mr. J. E. Ward, a veteran Aus-

tralian naturalist who accompanied him to Papua. He expected to visit the Owen Stanley Range of Mountains, which is the home of some dozen species of Birds of Paradise, including Prince Rudolph's blue and many other rare and beautiful birds which are rarely or never seen in a Zoological Park. Cables and letters received from Mr. Crandall indicate that the necessary permits had been procured from the Australian authorities and that the expedition was proceeding satisfactorily and showed every promise of success.

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RECEPTIONS

The Twentieth Annual Dinner to the Board of Managers was held through the courtesy of Mr. Henry D. Whiton at the Union Club on Thursday, December 27th, 1928. Immediately after the dinner, the Annual Meeting of the Board of Managers was held.

The Spring Meeting of the Board of Managers was held in the Administration Building on May 10th, 1928. The meeting was preceded by a luncheon and followed by the Annual Garden Party.

MEMORANDUM OF MEETINGS

1929-1930

Annual Meeting of the Society:

JANUARY 14, 1930

Hotel Plaza

Meetings of Board of Managers

Annual Meeting:
December, 1929

Spring Meeting-Park:

May 16th, 1929

Preceded by luncheon

In Memoriam

JOHN E. BERWIND

Extracts from Minutes of the 338th Meeting of the Executive Committee held on June 13, 1928, at 11 o'clock, at The Farmers' Loan & Trust Co., 22 William Street.

The death of Mr. John E. Berwind, a Founder of the Society and a member of the Board of Managers since 1923, on Friday, May 23rd, 1928, was noted and the following resolution expressing the sincere regret of the Executive Committee was duly adopted.

"Whereas, John E. Berwind has been a member of the Board of Managers for twenty-six years and has always shown a keen interest in the affairs of the Society and has contributed generously to its funds, and

"WHEREAS, the Committee has learned of the death of Mr. Berwind, with sincere regret, therefore be it

"Resolved, that as an expression of such regret, this resolution and preamble be spread upon the minutes of the Executive Committee and the family of Mr. Berwind advised of the action taken."

Executive Committee Meetings: 2nd Thursday Monthly

January 10 May 9
February 14 June 13
March 14 October 10
April 11 November 14

December 12

Members' Day and Ladies' Day at the Zoological Park: May 16, 1929, 3 P. M.

AUDITING

The Auditors, Messrs. Peat, Marwick, Mitchell & Co., have audited and found correct the accounts of the Society.

The Auditor's Report, as well as that of the Auditing Committee, follows the Report of the Treasurer.

ACKNOWLEDGMENTS

The Directors of the Park and Aquarium and their respective staffs have worked faithfully to maintain their institutions at a high standard of efficiency. The Committee desires to acknowledge with appreciation their zeal and energy.

MADISON GRANT, Chairman

PERCY R. PYNE

WILLIAM WHITE NILES

FRANK K. STURGIS

ANTHONY R. KUSER

BAYARD DOMINICK

HENRY D. WHITON

W. REDMOND CROSS

H. FAIRFIELD OSBORN, IR.

CORNELIUS R. AGNEW, Ex-officio







Banting, Bibos sondaicus. Presented to the Park by the Junior Auxiliary of the Society.

REPORT OF

THE LADIES' AUXILIARY

Of the New York Zoological Society

DURING the year 1928 the activities were carried on as usual. The Junior Auxiliary of the Ladies' Auxiliary now has 325 active members, all children. Over \$700.00 has been received in dues from the children; and by adding this to the previous balance they have been able to donate to the Zoological Park an African Cape Buffalo, the banting, at a cost of \$1,250.00.

The usual spring meeting was held this year at Mrs. Henry Rogers Benjamin's home April 27th. The attendance was excellent and the children showed much enthusiasm over the films entitled "Old and New World Animals" and several reels of Martin Johnson pictures. Mr. Ditmars spoke, and his descriptions were most interesting as always.

The Garden Party was held in May as usual with a large attendance. There was music which added to its success. The excursions were unusually interesting under the splendid guidance of Miss Pauline Robinson.

In 1908 the Ladies' Auxiliary of the New York Zoological Society started to raise a fund in order to create an endowment fund.

In June, 1928, the amount on hand was \$3,830.00, and since June first the amount has been increased, making the total endowment fund of the Ladies' Auxiliary at this date \$5,680.00.

The courtesies of the attendants of the Zoological Park are marked and appreciated by all visitors; and every effort is being made by the Ladies' Auxiliary to increase membership of the Zoological Society.

Mrs. Henry Fairfield Osborn, Chairman.

Mrs. Clarence G. Michalis

Chairman, Junior Auxiliary of the Ladies' Auxiliary.

MISS PAULINE ROBINSON,

Chairman of the Ladies' Auxiliary Committee, for Children's Excursions to Bronx Park.

FUND FOR EXCURSIONS—BRONX PARK Summer Season 1928

Received through Miss Robinson the following contributions from members of the Ladies' Auxiliary of the New York Zoological Society:

Mrs. George F. Baker, Jr	\$50.00
Miss Eleanor deGraff Cuyler	10.00
Mrs. William B. Osgood Field	10.00
Mrs. Arthur Fowler	10.00
Mrs. Morgan Hamilton	10.00
Mrs. Henry R. Hoyt	10.00
Mrs. Clarence G. Michalis	10.00
Mrs. Shelton E. Martin	5.00
Mrs. Walter Maynard	5.00
Mrs. Stephen H. Olin	10.00
Miss Mary Parsons	10.00
Mrs. Percy R. Pyne	10.00
Mrs. William G. Rockefeller	5.00
Mrs. Henry M. Tilford	25.00
Mrs. William V. S. Thorne	25.00
Mrs. George Whitney	50.00
Total	\$255.00

BRONX PARK TOURS

Summer Season 1928

The children's outings to Bronx Park, always an important part of the summer's recreation program, were especially in demand this year because of the total lack of open spaces in many of the congested sections of Manhattan, making it even more necessary to provide for such relief from the hot and stuffy streets as only a day's outing to the Park would bring. In all fourteen (14) settlement and neighborhood houses availed themselves of the opportunity afforded and many an anxious mother's heart was gratified to know that her young charges were being so well cared for; in fact many of the mothers were only too glad to come along and help care for the groups, some with babes in arms, and often "big sister" would be entrusted with this responsibility.

The day's itinerary consisted chiefly as follows: A long ride to the Park by either subway or elevated, at the end of which destination a cool and grassy spot was found in which to eat lunch, then followed the usual games and story telling—a short rest, a visit to the Zoo where birds, monkeys, lions, elephants, tigers, and many others housed therein, were viewed in turn by delightful eyes; and last but not least the long expected treat of ice cream, and this finished, tired but happy, all turned homeward.

As has been the custom for several years, a number of the boys of the Baseball League from the lower sections of Manhattan, were taken by leaders to the Park, and in addition to enjoying the advantages of the Park, an opportunity was afforded to indulge in a game of baseball on the big open field allotted for this purpose. These games are always well attended by the visiting public.

STATEMENT OF EXPENSE

Day Excursion Tours—Bronx Park—Summer Season 1928

Centre	No. of Children	Total Cost
Henry Street Settlement	" O	£10.00
Via bus to Central Park Cherry Blossom Grove—May 5th Greenwich House Settlement	50	\$12.00
Treat on 6 outings	250	25.00
Council House	400	20.00
Treat on 8 outings	300	30.00
Treat on 10 outings	300	30.00
Presentation Day Nursery	* 0	10.00
Treat and carfare on 2 outings	50	10.00
Treat on 1 outing	50	5.00
Henry Street Settlement	100	25.00
Fare via bus on 1 outing	100	25.00
Treat on 2 outings	100	10.00
Bowling Green Neighborhood House	50	f 00
Carfares 50 boys on 1 outing	50	5.00
Treat on 1 outing	20	2.00
Jacob A. Riis House	100	40.00
Treat on 2 outings	100	10.00
Treat and carfare on 3 outings	100	15.00
Wilson House	40	4.00
Treat and carfare on 2 outings	50	5.00
Treat on 4 outings	100	10.00
Bellevue-Yorkville District		
Treat on 1 outing	40	4.00

Baseball League Carfares for 150 boys	15.00
various tours (22 outings) at the rate of \$4.00 per day	88.00
Total expense	\$301.00 255.00
Expense met by PLAY COMMITTEE	\$46.00

NOTE:-Number of children participating-1810.

The Ladies' Auxiliary *

OF THE

New York Zoological Society

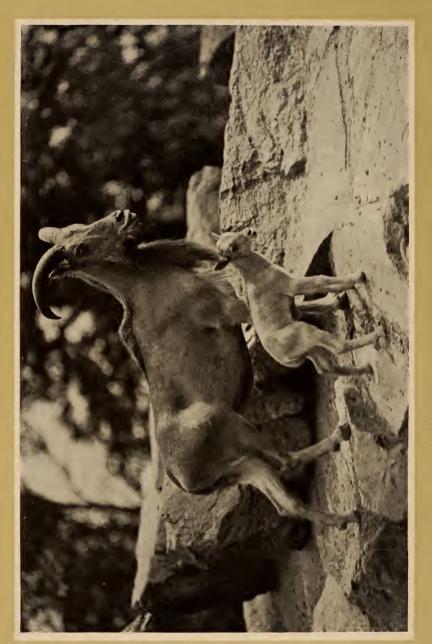
Mrs. Henry Fairfield Osborn, Chairman Michalis, Mrs. Clarence G., Chairman of Jr. Auxiliary

BAKER, MRS. GEORGE F., JR., COOGAN, MRS. JAY, CUYLER, MISS ELEANOR DE GRAFF, DODGE, MRS. CLEVELAND E., FIELD, MRS. MARSHALL, FIELD, MRS. WILLIAM B. OSGOOD, FINCKE, MRS. REGINALD, FORSYTHE, MRS. HARRY, FOWLER, MRS. ARTHUR, GERRY, MRS. ROBERT L., GRANT, MRS. DE FOREST, HAMILTON, MRS. MORGAN, HARRIMAN, MRS. J. BORDEN, HOYT, MRS. HENRY R., MCKAY, MRS. ROBERT GORDON, MARTIN, MRS. SHELTON E.,

MAYNARD, MRS. WALTER E., NILES, MRS. WILLIAM WHITE, OLIN, MRS. STEPHEN H., OSBORN, MRS. FAIRFIELD, JR., PARSONS, MISS MARY, PYNE, MRS. PERCY R., ROBINSON, MISS PAULINE, ROCKEFELLER, MRS. WILLIAM G., THORNE, MRS. WILLIAM V. S., TILFORD, MRS. HENRY M., TOWNSEND, MRS. E. M., TRIMBLE, MRS. RICHARD, WEBB, MRS. ALEXANDER S., WHITNEY, MRS. GEORGE, WITHERBEE, MRS. FRANK S., WOODWARD, MRS. WILLIAM,

^{*}The complete Membership of the Junior Auxiliary of the Ladies' Auxiliary of the Society is included among the list of members on page 155 of this Report.





Aoudad, Barbary Sheep, and young born in the Park.

REPORT OF THE

DIRECTOR OF THE ZOOLOGICAL PARK

By W. REID BLAIR

THE year 1928 closed with the collections of the Zoological Park fully maintained at the high standard of past years and with a number of important new species added to our collection. In continuance of the efforts to add new and interesting specimens to our exhibits we have been successful in obtaining certain species that have been missing for a number of years. Among these are the Rocky Mountain goat, prong-horned antelopes, Barbary ape, Dorcas gazelle, Eld's deer and a male kudu. The following species new to our collections were added: Punjab sheep, oribi antelopes, Dybowski deer and gayals. Four fine large Galapagos tortoises were received early in May from Mr. William K. Vanderbilt, who had obtained them from Charles and Duncan Islands during the cruise of his yacht "Norma."

The American prong-horned antelope is a delicate species in captivity and has not been on exhibition in the Zoological Park for a number of years. We have recently obtained a pair from Alberta and they seem to be doing well under the care of Keeper Quinn. The Zoological Society has been interested for many years in the preservation and propagation of the prong-horned antelopes but has been unwilling to bring them to New York for exhibition since they have not proven a hardy species in captivity in this locality. During the past few years, however, due to stringent protection laws, the species has increased in numbers, justifying our renewed attempt to maintain them in our collection.

A Rocky Mountain goat obtained early in the year is developing satisfactorily. The pair of Dybowski deer recently obtained are new to our collection. These deer are closely related to the sika deer of China and Japan but somewhat larger than either of these. They have been placed with their related species in the Asiatic Deer house. No difficulty is anticipated in acclimating them in this climate.

On October 31 one of the rarest of all zoological species, a male baby gorilla weighing only $17\frac{1}{2}$ pounds, was received. It was acquired

from Dr. W. Reginald Wheeler, who had obtained it from a tribe of natives in the interior of the Gaboon region in the French Congo, West Africa. It has never been possible to keep a gorilla in captivity on the American continent for longer than a few years. Because the animal has been in ill health since its arrival it has not been possible to place it on exhibition up to the present time. It is now making satisfactory progress and it is hoped that by early spring it may be in fit condition for exhibition. The last gorilla that was exhibited in the Zoological Park was "Dinah," who was brought to us by the late R. L. Garner in 1914. "Dinah" lived in the Zoological Park eleven and one-half months.

A six-hundred pound California sea-lion was obtained by purchase from the San Diego Zoological Park. A fine pair of young lions were also obtained from the same source. They mated soon after their arrival at the Park and on Christmas morning the female presented us with two fine cubs, the first born in the Lion House for many years. The cubs are apparently developing well in the vitaglass-covered studio cage in the Lion House. It will be recalled that the vitaglass in this cage was provided for through money privately subscribed by a number of the members of the Board of Managers for the purpose of studying the efficacy of this glass in the prevention of rickets by admitting the ultra-violet rays of sunlight.

NEW GUINEA EXPEDITION

During the summer the Executive Committee authorized an expedition to New Guinea for the purpose of collecting some of the rare birds of paradise and other species peculiar to this island. The expedition was in charge of our Curator of Birds, Mr. Lee S. Crandall, who sailed from San Francisco on August 15. The reports from Mr. Crandall while in the field indicate that the expedition has met with great success. Mr. Crandall is expected to return to New York the latter part of March.

COLLECTING TRIP IN HONDURAS

Curator Ditmars' collecting trip to Honduras resulted in the acquisition of a good collection of reptiles from that locality. In addition Mr. Ditmars has made contacts which will enable the Zoological Park to receive additional specimens from that country as they are needed.

RESEARCHES

By a cooperative arrangement between the Zoological Society and the Biology Department of New York University a series of research problems were undertaken during the past year with the result that some interesting data has been obtained dealing with the studies of the blood of the Primates, Camelidae and the Marsupials. This arrangement permits the Zoological Park to take advantage of the opportunities offered for scientific investigation and definite studies of certain of our animals which members of the Zoological Park staff are unable to undertake because of pressure of other duties, lack of extensive laboratory equipment and library facilities.

During the year the studies in comparative hemaetology were carried on by Professor Eric Ponder and his associates, J. Franklin Yeager and Harry A. Charipper. The results of some of these researches have already appeared in the Society's scientific publication "Zoologica." The results of the first year's work along these lines are most gratifying and it is proposed to continue them during the coming year.

SCHOOL CLASSES

The public and high schools continue to send increasing numbers of students for serious observation and study of our exhibits. Plans are being worked out which it is hoped will result in greater cooperation between the Zoological Park and the teachers and lead to greater use of our exhibits for teaching purposes.

ATTENDANCE

Again we are able to report an increase in the attendance of visitors to the Zoological Park. This year's attendance constitutes the record for all time. A total of 2,759,991 persons passed through our turnstiles. Probably no similar institution can match these remarkable figures. It is a matter of considerable gratification to realize that the visitors to the Zoological Park continue to find our exhibits interesting and attractive.

The monthly attendance figures for the past two years are as follows:

	1928	1927
January	114,991	60,928
February	131,176	81,327
March	113,394	130,339
April	232,158	227,674
May	345,641	446,777
June	423,123	243,916
July	387,514	330,865
August	259,183	263,640
September	298,524	344,345
October	210,078	251,229
November	118,080	121,872
December	126,129	70,292
	2,759,991	2,573,204

VISITORS

Among the distinguished foreign visitors to the Park during the year were Lord and Lady Allenby, who stopped for a few days in New York on their way to San Antonio, Texas, where Lord Allenby was a guest and speaker before the convention of the American Legion. Lord Allenby was at one time on the Council of the London Zoological Society and is thoroughly conversant with zoological collections. It was while Lord Allenby was British High Commissioner in Egypt that he rendered the New York Zoological Society a great favor by granting a permit for the capture and export of our Abyssinian wild ass, the only representative of this species in captivity today.

During the meeting of the American Association for the Advancement of Science held in New York City late in December, about two hundred of the visiting delegates, composed largely of biologists, zoologists and naturalists, were the guests of the Society at luncheon in the Boat House restaurant. After the luncheon the delegates were escorted through the Park by the officers of the Park staff.

VANDALISM

As a result of the campaign conducted to check vandalism and malicious mischief on the part of a small number of unruly young visitors during the past summer, which had led to the killing of a Dorcas gazelle and injury to the rare shoe-bill stork and the large California sea-lion, two Bronx boys were caught by the police and later fined \$5.00 each in the Children's Court. One was a thirteen-year-old high school student. His companion was under twelve. They were caught throwing stones at the llamas, and had struck one animal on the head when a gateman caught them. The parents of the boys promised to add to the Court's punishment in other ways than fines.

When the public was informed, through the newspapers, of the cruelty of the young vandals, there was a waive of resentment and vigilance on the part of visitors and residents in the neighborhood of the Park which seemed to check the nuisance.

With our constantly increasing attendance it will be necessary to have additional guards or police to effectively eliminate this type of offender.

ALTERATIONS

The Reptile House, first of the important buildings constructed from the funds of the Zoological Society, was completely renovated during the past year. A new copper roof replaced the slate roof. The old exhibition cages in the south lobby were removed and the space remodeled in order to provide for a larger and more adequate display of the interesting tortoises and turtles.

In the Lion House new floors were laid in a number of cages and the old metal gutters in front of the cages were replaced by sanitary concrete ones.

In the Small Mammal House the entire series of small cages along the west side of the building were reconstructed and enlarged. These alterations provide more room and better lighted cages for the interesting species in this building.

The remodeling of the cages along the west side of the Primate House is now under way. All the old wooden cages are to be replaced by new steel and concrete ones of larger size. When these cages are completed they will afford greatly increased accommodations for a larger number of smaller species of the Old World and New World monkeys. The new cages will also tend to induce more activity on the part of the animals and give the visitors a better opportunity to witness their acrobatic performances. These improvements will also eliminate the floor pockets which have caused so much congestion on crowded days and will expedite the passage of visitors through the building.

With the exception of the new copper roof on the Reptile House all the alterations mentioned were made possible through funds provided by the Zoological Society.

FIRES

The Reptile House with its priceless collection was threatened with destruction by fire on the evening of November 27. At the time the Reptile House was undergoing extensive repairs and the fire was discovered in some of the contractor's materials stored near the south side of the building. Prompt and intelligent action on the part of the Captain of the Watch, John Baillie, Gatekeeper Dan Schlosser and Watchman Mergner, who fought the fire until the arrival of the Fire Department, probably saved the structure and its inmates from serious loss. Battalion Chief Kelly and his men fought the fire from the inside of the building and succeeded in keeping it localized so that no great damage was caused by smoke or water. The damage to the building amounted to about \$500.00. None of the collections suffered any ill consequences.

Our volunteer firemen responded to an unusually large number of fires during the year, chiefly because of visitors carelessly throwing lighted cigars, cigarettes or matches away among the dry leaves and brush in the wooded sections of the park. Their efforts were successful in preventing any serious damage to our forest.

ACKNOWLEDGMENT

The death of Charles von Hagen, who had been in the employ of the Zoological Park for nearly twenty-two years, was a serious loss to the Zoological Park force. Mr. von Hagen as label writer had prepared all the descriptive labels throughout the Park. He was keenly interested and took great pride in his work and was untiring in his efforts to improve upon the appearance of the labels. The Park Department, under the administration of Commissioner Hennessy, continued to offer its helpful cooperation in all matters affecting the welfare of the Zoological Park.

DEPARTMENT OF MAMMALS

RAYMOND L. DITMARS, Curator; JOHN TOOMEY, Head Keeper

Several important changes in exhibition arrangements were planned and started during the year. These particularly applied to the Small Mammal House and the Primate House. The plan was to give the animals more spacious cages, up-to-date sanitation, and more light. A new sanitary drain has also been carried the entire length of the Lion House cages.

The changes in the Small Mammal House have resulted in the production of cages on the westerly side of approximately eight times the size of the old cages. The new enclosures have been provided with shelves and trees and other exercising devices. Construction of a series of lofty cages on the westerly side of the Primate House does away with the old series of small wall cages. Beside the lighting now coming directly from a series of large windows, there will be installation of therapeutic arc lamps, to provide ultra violet light.

With the renovation of buildings, the question of labels has received considerable study. As the Small Mammal House contains representatives of a number of orders, large panel labels which show an outline of the classification of mammals, have been hung at each end of the building. Beneath the list of orders are blocks of colors, referring to the orders represented in the collection, and corresponding color bands are carried on the top of each label, to conform to the key. This arrangement has been of much interest to classes in animal biology which visit the Park. Charts showing the classification of the primates are being prepared for that collection, and the question of a thorough revision of the scientific nomenclature in the guide book, to conform to new labels, is now under consideration.

The instructional work of the Curator of this department during the year covered the circulation of our motion picture reels among the public schools; the writing of an extensive, though simplified review of the primates, profusely illustrated; the guidance of a number of classes; lectures to teachers at training schools, and other lectures before large educational institutions.

The department sustained a serious loss in the death of our veteran label writer, Charles Von Hagen. Stephen Beebe, who has specialized in the preparation of signs and labels, has taken the position and is renewing the extensive series of labels for the spring. Owing to weathering, changes of specimens and changes in scientific nomenclature, the labels must be constantly renewed.

A considerable number of animals were purchased during the year, and the following were among the more important acquisitions: one Rocky Mountain goat, two Punjab sheep, two Dorcas gazelles, two Oribi antelopes, two Eld's deer, one kudu, three prong-horned antelopes, two gayals, two guanacos, two lions, one gorilla, one chimpanzee, one Barbary ape and one black howling monkey. A number of gifts to the collection are listed in detail in another part of this report.

Following are the births during 1928: one mongoose lemur, two lions, two Himalayan tahr, one mouflon, seven aoudads, one Punjab sheep, one hog deer, five axis deer, one Barasingha deer, three red deer, two fallow deer, one anoa, two yaks, three American bison, one guanaco, one Bactrian camel and one Mongolian wild horse.

The losses during the year were normally proportionate to the extensive series on exhibition, and are noted in the report of the Veterinarian.

Following is a census of the mammal collections taken on the last day of the year:

Orders	Species	Specimens
Primates	47	88
Carnivora	48	113
Pinnipedia	2	4
Rodentia	14	30
Ungulata (Artiodactyla)	53	242
Ungulata (Perissodactyla)	12	20
Proboscidea	3	3
Edentata	3	7
Marsupialia	11	33
Total	193	540

DEPARTMENT OF BIRDS

LEE S. CRANDALL, Curator; WILLIAM BEEBE, Honorary Curator; SAMUEL STACEY, Head Keeper

Because of the absence of the Curator during the latter part of 1928, the efforts of the Bird Department staff were directed toward the maintenance of the collection, and only the most necessary additions were made. These included a splendid Silvery-cheeked Hornbill (Bycanistes cristatus), from East Africa, the gift of Mr. Kenyon V. Painter, of Cleveland, Ohio; an excellent example of Blyth's Wreathed Hornbill (Rhytidoceros subruficollis), from Burma and adjoining territory, obtained from a local dealer; and a pair of the very rare Bouquet's Amazon (Amazona arausiaca), from the island of Dominica, also secured by purchase.

The most important loss during the year was that of our old male South African Ostrich. This bird was secured from the defunct ostrich farm at Bloomsburg, Pennsylvania, on January 6, 1909, and had lived out-of-doors winter and summer, in the Zoological Park, since that time. On March 26th, we lost our Tawny Frogmouth (*Podargus strigoides*), which had been a great attraction in the Bird House since his arrival on November 5, 1920, a very unusual longevity for this delicate species.

Late in the summer, our Shoebill (Balaeniceps rex) was badly injured by a stone, apparently thrown by a malicious visitor. Fortunately, as the result of the constant attention of Dr. Noback and Keepers Atkin and Hoffman, this rare and striking bird has made an excellent recovery.

On December 9th the Zoological Park in general and the Bird Department in particular, suffered a severe loss through the death of Keeper George Snyder. Keeper Snyder had been in charge of the Ostrich House and Pheasant Aviary since 1906 and during his twenty-two years of service, developed that refinement of skill which only long experience can bring. Many of the breeding successes obtained in the Zoological Park during the past twenty years were due to the unusual ability of Keeper Snyder in this particular field.

On August 9th the Curator left on an expedition to New Guinea from which he is expected to return in March, 1929. The particular object is the collection of a series of living birds of paradise for the Zoological Park, the obtaining of still and moving picture records of the natives and the country which they inhabit, and as much data as can be secured in a limited time, concerning the bird life of that little known island. During his absence the bird collections in the Zoological Park have been maintained in excellent condition by Head Keeper Stacey and his staff, and the clerical and correspondence work of the Department has been efficiently carried on by Miss Grace Dayall.

CENSUS OF BIRD DEPARTMENT January 1, 1929

		Species	Specimens
Rheiformes,	Rheas	1	2
Struthioniformes,	Ostriches	1	1
Casuariiformes,	Cassowaries and Emus	3	6
Tinamiformes,	Tinamous	2	2
Galliformes,	Quail, Pheasants, etc	52	120
Turniciformes,	Hemipodes	2	2
Pteroclidiformes,	Sand Grouse	1	2
Columbiformes,	Pigeons and Doves	44	112
Ralliformes,	Rails and Gallinules	13	19
Sphenisciformes,	Penguins	1	1
Lariformes,	Gulls and Terns	14	41
Charadriiformes,	Plovers and Sandpipers	10	14
Gruiformes,	Cranes, Seriemas, etc	16	27
Ardeiformes,	Ibises, Storks and Herons	22	38
Palamedeiformes,	Screamers	2	2
Phoenicopteriformes,	Flamingoes	2	2
Anseriformes,	Swans, Geese and Ducks	55	288
Pelecaniformes,	Cormorants, Pelicans, etc	8	15
Cathartidiformes,	New World Vultures	3	7
Accipitriformes,	Old World Vultures, Hawks		
	and Eagles	23	34
Strigiformes,	Owls	10	18
Psittaciformes,	Parrots, etc	98	200
Coraciiformes,	Kingfishers, Hornbills, etc	16	24
Cuculiformes,	Cuckoos and Touracos	7	12
Scansoriformes,	Barbets and Toucans	12	18

Piciformes,	Woodpeckers	2	2
Passeriformes,	Perching Birds 3	10	755
		_	
	73	30	1,764

Summary: Orders, 27; Species, 730; Specimens, 1,764

SPECIES OF BIRDS NEW TO THE COLLECTION Received During 1928

Allen's Purple Gallinule—Iornornis alleni (Thompson)
Cassin Dove—Leptotila cassini (Lowr.)
Prairie Falcon—Hierofalco mexicanus Schlegel
West African Eagle Owl—Bubo poensis poensis Fraser
Mitchell's Lorikeet—Trichoglossus mitchelli Gray
Jamaican Conure—Eupsittula nana (Vig.)
Bouquet's Amazon—Amazona arausiaca (Müll.)
Indo-Burmese Parrakeet—Palaeornis eupatria indoburmanicus Hume
Blue-crowned Hanging Parrakeet—Loriculus galgulus (Linn.)
Blyth's Wreathed Hornbill—Rhytidoceros subruficollis (Blyth)
Silvery-cheeked Hornbill—Bycanistes cristatus (Rüpp.)
White-browed Coucal—Centropus superciliosus Hempr. & Ehr.
Siberian Goldfinch—Carduelis carduelis major Tacz.
Peale's Parrot Finch—Erythrura pealei Hartl.

DEPARTMENT OF REPTILES

RAYMOND L. DITMARS, Curator; JOHN TOOMEY, Head Keeper

Through the results of two important expeditions, the Reptile Department has been enriched by the most complete living series of giant tortoises that has ever been brought together for exhibition and study. An expedition to the Galapagos Islands, conducted by Mr. W. K. Vanderbilt, returned on March 22nd and donated to us three specimens of the saddle-shaped tortoise of Duncan Island. They weighed, respectively, 110, 82 and 61 pounds. This species is technically known as Testudo ephippium. The Vanderbilt Expedition also brought a specimen of T. vicina, from Charles Island. This specimen had been taken to that island from Albermarle, by a native. The big tortoises are now alleged to be extinct on Charles Island.

About one month later, Dr. Charles H. Townsend returned from an extensive investigation of Albermarle and other islands in the Galapagos group. He brought to the Park one hundred and eight tortoises of a species we are provisionally designing as T. güntheri which appears to be very closely related, if not synonymous with T. vicina of Albermarle. It appears to occur, however, in the mountains of that island.

Dr. Townsend's total capture was one hundred and eighty tortoises. The object in collecting this series was to establish colonies for propagation and perpetuation of the species in the United States. Twenty-five of the tortoises were left at the Botanical Gardens in the Panama Canal Zone, thirty in the care of the Zoological Society of San Diego, and twenty at the Boyce Thompson Arboretum at Superior, Arizona. Of the one hundred and eight specimens which arrived at the Park, we shipped, at Dr. Townsend's directions, fifteen to the Zoological Gardens at San Antonio, Texas, fifteen to Audubon Park, New Orleans, Louisiana, ten to Bermuda in charge of the aquarium authorities, and twenty-three to Florida. Of the entire series, but very few specimens were weakened and lost through lengthy travel.

Twenty-three specimens from Dr. Townsend's expedition remain at the Park. They range in size from a specimen slightly over three inches long and weighing four and one-half ounces, to examples up to ten pounds. We estimate their ages to be from slightly under two years to five or six years. The series then steps up in size to weights of over three hundred pounds with examples that have been on exhibition in the Park for nearly twenty-five years. Thus a series of specimens ranging in weight from four and one-half ounces to three hundred pounds, offers wonderful opportunities for observation and study of growth which will result in records of great value and interest.

The Curator of the department returned from a short expedition to Honduras in the early spring, bringing a varied collection of the characteristic reptiles of Central America. Among these were a number of the prevailing and very dangerous snake of the area known as the barba amarilla. One reason for the trip was to study methods of collecting serpent venoms at the new Serpentarium at Tela, which is jointly maintained by Harvard University, the United Fruit Company, and

the H. K. Mulford Company. The venoms are sent to the Antivenin Institute of America, for the production of serum to be used in Central America. The Curator was given every facility for photographic work and study by the United Fruit Company and tendered the use of their guest house. Motor cars running over the narrow-gauge banana railroads were provided, and trips were made to Progresso and San Pedro Sula. From the latter base, a trip was made to the Chamelecon River and through the jungle into the Ticamaya Lagoon, which swarms with bird and reptile life. A valuable series of motion pictures was an additional result of this trip.

This short expedition proved to be of considerable practical value. An area of intensely interesting country, teeming with wild life, was disclosed as being easily accessible, and within a few days' travel from the States. Owing to our increasing contact with the Central American countries, there is a steadily growing interest in this area of the American tropics. The films of the expedition have already been exhibited before the National Geographic Society, the Philadelphia Academy of Sciences, the Brooklyn Academy of Arts and Sciences, and a number of the high schools.

But few purchases were made during the year, as losses in the reptile collection were superficial and new specimens were not needed. The frame-work of the large cages has been coated with paint giving a copper effect, blending with the tropical plants of the spacious main floor. The entire series of labels is being renewed to show more descriptive detail, and thus conform to the educational aims of the Society.

Following is a census of the reptile collections, taken the last day of the year:

	Species	Specimens
Turtles and Tortoises (Chelonia)	28	156
Serpents (Ophidia)		173
Lizards (Lacertilia)	8	26
Crocodilians (Crocodilia)		28
Amphibians	8	37
Total	96	420

A census of the animals in the Zoological Park, taken December 31, 1928, is as follows:

Mammals	730	540 1,764 420
Total 1	019	2.724

REPORT OF THE VETERINARIAN CHARLES V. NOBACK

The general condition and health of the animal collection has remained satisfactory during the past year. There were no serious losses from infectious or contagious diseases. Among the mammals most of the losses were largely confined to recent accessions among the smaller delicate specimens, such as weasels, baby opossums, ferrets and small South American monkeys like the sapajous and marmosets. As usual, a considerable number of these small animals had been brought to the Park after having been kept as pets and some were not in good condition when received. A number of birds in the Aquatic Bird House were lost during November and December from a condition resembling roup, and some from enteritis.

A Himalayan black bear, a male Grant zebra, a young Indian elephant and a prong-horned antelope were the most valuable large mammalian specimens lost.

An acute peritonitis, resulting from a perforation of the duodenum by a sharp pointed peach stone, was the cause of death in the Himalayan black bear. The Grant zebra died suddenly from a concussion of the brain as the result of striking its head against the iron fence while frightened during a lightning storm.

A very young female Indian elephant about two and a half years old was acquired on November 4, 1927. It weighed 422 lbs. on its arrival. Its appetite was capricious. The diet consisted primarily of milk. About two months after arrival it developed a serious case of enteritis with dysentery. Repeated examinations of the excreta were negative, thereby ruling out intestinal parasites. The condition cleared up under treatment after two weeks, leaving the animal considerably emaciated and in a weakened condition. It began to show clinical signs of rickets,

such as the bowing of the front legs. Ultra-violet irradiation together with the institution of proper dietary changes was not followed by marked improvement. On May 20, while being exercised by its keeper, it fell and fractured both humerii. It was necessary to humanely end its suffering. The bones were immature and soft. No intestinal parasites were present. The immediate cause of death was a fracture of the humerii.

A prong-horned antelope died a few days after arrival from a purulent broncho-pneumonia. It had apparently become infected during transit.

Infectious Diseases.—Two cases of tuberculosis were found among the primates, one in a lemur and the other in a sapajou monkey during quarantine. The monkey had been kept as a household pet and apparently had been infected from a human source. Lesions in both cases were extensive and confined to the lungs.

Three clinical cases of distemper with complications were found, two in coati mundis and one in a ferret. They were properly disposed of during quarantine, and thorough cleansing and disinfection were carried out.

Two kangaroos, a wallaby and a Woodward, were lost from kangaroo jaw disease, a necrotic alveolar periostitis.

The Rocky Mountain goat which arrived early in the year was found to have been infested with stomach worms (*Haemonchus contortus*). Proper treatment and care brought about a recovery. This animal seems to be in good condition at the present time.

Attention to the details of cleaning and disinfection and the carrying out of quarantine measures have prevented possible losses from the introduction of infectious and contagious diseases.

Accidents.—Among the losses from accidents that of the zebra mentioned above is the most important. An unusual number of specimens were injured by irresponsible persons during the past year. Among these cases the following are mentioned.

1. A Dorcas gazelle was found dead one morning and autopsy showed that it had been killed by a .22 calibre bullet which pierced both lungs.

- 2. The rare shoebill stork (Balaeniceps rex) suffered from a fracture of the right maxilla resulting from an injury by a sharp stone apparently thrown by some irresponsible person. Immediate attention to the injury aided in preventing complications and possible loss of this valuable bird.
- 3. The right eye of the large male sea-lion suffered from a painful inflammation of the cornea and bruises of the lids as the result of injury.

A number of small mammals are lost each year through indiscriminate feeding by well-meaning but ignorant visitors.

BABY GORILLA

On October 31, 1928, a male baby gorilla named "James" and a baby female chimpanzee, "Eleanor," each about eighteen months old, were referred to the Animal Hospital at the Park. They had been brought from Central Africa by way of Europe by Mr. W. Reginald Wheeler and were suffering from a severe cold contracted during their journey while on board ship. Both were emaciated and weak. After being carefully blanketed and protected they were taken from the ship directly to the hospital and placed under treatment. Both animals were also affected with a severe dermatitis which apparently was a sequellae to scurvy.

The few young immature gorillas that have been brought out of Africa usually weigh about from 30 to 40 lbs. and none have survived very long in captivity under artificial conditions. They usually survive only several months or at most two years. "John Daniel" weighed 32 lbs. when he reached England. It can be seen that the sick 17½ lb. gorilla did not present a very encouraging outlook when it arrived at the Hospital on October 31. Every possible measure was taken to provide suitable quarters and a carefully selected schedule of feeding and nursing, together with medical treatment which included daily ultraviolet irradiation. Dr. Alfred F. Hess, Professor of Pedriatics at the New York University Medical School, was called in consultation and approved the course of treatment instituted. The young gorilla's chimpanzee companion received the same care and attention.

During the first ten days after their arrival at the Park progress was slow and at times discouraging. Gradually, however, they began to show some signs of improvement. On the 27th of December the

gorilla had gained $5\frac{1}{2}$ lbs. and weighed $22\frac{3}{4}$ lbs. The chimpanzee gained $3\frac{1}{4}$ lbs. and weighed $21\frac{1}{2}$ lbs. While a beginning has been made and it is hoped that they will continue to progress, it is too early to make a definite prediction as to how long the young gorilla may live.

DEPARTMENT OF ADMINISTRATION

H. R. MITCHELL, Chief Clerk and Manager of Privileges; WILLIAM MITCHELL, Cashier

The original budget allowance by the City for 1928 for the maintenance of the Zoological Park was \$307,280 to which was added a supplemental allowance for salary increases, effective on April 1st, of \$12,100.50, making the city maintenance fund for the year \$319,380.50.

Approximately \$20,000 was for special repairs, including the item for repairs to the Reptile House Roof, with the provision that the balance of this item above the cost of the roof should be applied to Fence Repairs. The contract for the Reptile House Roof was let to the Victory Roofing and Skylight Co., Inc., for \$8,200 and the balance of this special repair item applied to very badly needed repairs to boundary fence. The amount was sufficient to rebuild a considerable portion of the boundary fence along the Boston Road in a very substantial manner with the use of Copperweld Wire Mesh, which will require no maintenance expense for painting.

For the first time in a number of years the City maintenance fund was granted in a one-line appropriation, permitting transfers to and from the various code items as our requirements demanded, which was a real aid in the distribution of the appropriation for the best interests of the Institution.

Notwithstanding the increases granted by the City for special repairs and the supplementary salary item, it was necessary for the Zoological Society to contribute the additional sum of \$52,676.35 for maintenance for the year. This made the total expenditure for 1928 maintenance \$372,056.85.

The Zoological Society made a further contribution to the betterment of park facilities during 1928 of \$2,500 for alterations and repairs to the Small Mammal House, which improvement was uncompleted on December 31st, and will require an estimated additional expenditure of \$3,500 in 1929.

A more extensive alteration in the Monkey House has been authorized from the Society's funds at an estimated cost of \$15,000. Some materials were ordered for this improvement, but no charges were made against the item before the close of the year, and the entire appropriation was carried to 1929.

For the maintenance of the Park for 1929 the City has granted us \$323,359, an increase of \$3,978.50 over 1928. To this sum the Society has been asked to add \$55,600, making a total maintenance budget of \$378,959.

The Bronxdale Entrance: The entrance to the Park at the North East corner where the Boston Road crosses the Bronx River was reopened early in 1928, after having been closed for several years. Extensive apartment building has been under way along Pelham Parkway and White Plains Avenue within a few blocks of this entrance for the past year or two, making it necessary to provide access to the Park at this point. While the number of visitors was not large, there has been a constant increase during the season. The largest attendance for a single day was more than 2,000.

Attendance: It had been estimated that Park attendance for the year would be 3,000,000, but this figure was not reached due principally to unfavorable weather in the spring and summer months when attendance is the heaviest. The increase over last year was 186,787, and the total for the year was 2,759,991, which is the greatest yearly attendance to date and carries the total attendance since the Park opened well above the fifty-million mark.

Purchase and Sale of Animals: Expenditures from the Animal Account for the purchase of specimens, including transportation and other expenses in connection therewith, amounted to \$21,001.88, which are about our normal animal requirements. No purchases were made from the Cadwalader Animal Endowment Account. Surplus and duplicate specimens were disposed of during the year to a total of \$2,970.

Accounts: The principal new account opened in 1928 was the Harkness Endowment Fund for the bequest of \$1,000,000 under the will of Anna M. Harkness, which bequest was received by the Society in May and yielded an income of \$25,513.38 for the balance of the year. In preparing our Income Budget for 1928 no account was taken of this be-

quest, and, therefore, the year's income considerably exceeded our budget figures.

The Galapagos Tortoise Account opened late in 1927 for the purpose of carrying the Galapagos Tortoise Expedition expenses, was closed with the year by a transfer of \$3,178.22 from the Society's Income Account to cover expenditures above the contributions from subscribers, which amounted to \$7,000.

Subscriptions were received for a Special Publication Account, to be devoted to the publishing of scientific investigations of the Tropical Research Department. The sum of \$2,950 was subscribed, only a small part of which was expended, the balance being carried to 1929 to pay for publications now in process of printing.

Subscriptions to the Tropical Research Account for the year amounted to \$8,000. Expenditures for this account were \$9,337.41, making a deficit of \$1,336.64, which was paid by the Society from the General Income Fund.

A new account was created for the New Guinea Expedition, which was financed by an appropriation of \$12,000 from the General Income Fund. Expenditures of \$8,488.04 were made against this Fund before the close of the year.

An audit of our accounts was made regularly at the close of each quarter by our auditors, Peat, Marwick, Mitchell & Company, and their Certificate of Audit, together with the report of the Audit Committee of the Society will appear in connection with the Treasurer's reports.

Privileges: The net profits from the operation of the Privileges for the year just closed were somewhat in excess of the profits from this source during any previous year since the Park opened, showing an increase of over 15 per cent over the previous year, while the increase in attendance over the year 1927 was only 7½ per cent.

New Refreshment Pavilion: Construction of the Refreshment Pavilion excavation which was begun just before the first of the year, was continued throughout the winter as weather permitted. Progress was, however, slower than had been anticipated. There were numerous and exasperating delays in connection with some of the details regarding interior finish and equipment, but they were all worked out eventually and brought to a successful conclusion, and the building opened for busi-

ness late in the season. Comment from visitors had been generally favorable and we feel that we have an excellent building from a construction standpoint, that will have an extremely low cost for repairs and upkeep. So far as this season's experience in operation goes, we believe the plan and arrangements will adequately meet requirements for the service it will be necessary to render at this location.

The steps leading to the Parking Space level and the plaza platform are only temporary wooden structures, so as to permit settling of the filled embankment in front and at either end of the building before permanent work is done. The final plans call for their replacement with permanent cast stone steps, retaining wall and balustrade that will be entirely in keeping with the building and bring the whole structure, as seen from the Boston Road, into proper proportion. These improvements, it is hoped, can be carried on and brought to completion during the year 1929.

Parking Space: The work of filling and rough grading the Parking Space at the Buffalo Entrance begun 1927, continued through first part of the year 1928. It was not our intention to put on the finished grade and cinder top dressing over the entire surface this season, as it was thought sufficient funds to complete this work could not be spared from the 1928 Privilege Improvement program, but the unfinished condition of this large area of the Park in such a prominent place was so unsightly that it was decided to continue the work to completion. A very large quantity of fill was required to bring the surface to rough grade, most of which was obtained without expense. For some of the most desirable fill we furnished the trucks at our expense, and for some we paid nominal prices to cover trucking. The surfacing required about 1,800 cubic yards of cinders, and the total expenditure for material and labor in filling and grading, and top dressing, was about \$9,000.

The Parking Space was put into operation as soon as a sufficient area was available for use, and continued throughout the remainder of the year, resulting in a net income of a little over \$1,100.

We anticipate some work will be necessary during 1929 to facilitate the rapid parking of the large number of cars to be handled with a maximum of safety. It is planned to have entrance and exit for the Parking Space at the West of the Buffalo entrance without requiring the passengers to pass directly across the automobile traffic to reach the front of the entrance.

The matter of drainage for the Parking area is a pressing question and should have attention at the earliest possible date. There is no adequate outlet to drain this area at present. This would not be such a serious thing, but in addition, the main trunk sewer line serving the greater part of the Park passes through the center of the Parking Space. The size of this trunk line is not sufficient and the result is that during storms it overflows and floods the entire space. Our previous application for funds for relieving this situation should be renewed.

Rocking Stone Restaurant: We did a very satisfactory gross business at the Restaurant during 1928. Although not equal to the business of the previous year, the shrinkage was not out of proportion to our expectations, showing a decrease of about 11 per cent.

We are still looking forward for some badly needed improvements in the kitchen equipment that we feel will make it possible for our present force to give better service and a more satisfactory showing with less effort.

All of our Restaurant employees have been with us for a number of years and we feel that they are doing their best under the conditions under which they are working.

It has been a number of years since there have been any improvements or replacements made in the kitchen, and most of our equipment is now obsolete and out of date.

Boating: The boating showed a modest gain over the previous year, both in gross receipts and net income. Two carloads of new standard type Mullin Steel Row Boats, with special specifications to meet our heavy duty requirements, were received and put into service at the beginning of the season. They were of slightly wider beam, but easily handled and very popular with patrons of the boating privilege.

One of our fleet of three electric launches was in need of quite extensive repairs to the hull, as well as a new battery. After careful consideration it was decided to demolish it rather than make the large outlay necessary to put it into first-class condition. Electric launch operation was adopted by us originally and has been maintained because of its greater safety in comparison with other types. We are continuing

the service while the present equipment can be kept in proper shape at reasonable expense, but plan to abandon it entirely in the near future.

The boating was not operated to our entire satisfaction during the past season, and it was decided to make a change in the foreman after the close of the season. We are now looking for a man to fill this position and hope to find one who can give satisfactory service for a long period.

Boat House Restaurant: There was some falling off in the volume of business at the Boat House Restaurant, but a slight improvement in the net results. While automobile traffic on Boston Road has increased rapidly, it has not as yet had any very appreciable effect on the Restaurant business at the Boat House.

Soda Water: This section of the Privileges made a substantial gain over the previous year, both in gross business and in net results. We had known for some time that prices charged for some items were not sufficient to give a reasonable profit. After the close of last season a careful analysis was made of the costs and selling prices, and an adjustment was made at the beginning of the next season, correcting certain items to a fair basis. The volume of business showed an increase of more than 16 per cent and the changes referred to were reflected in the net showing.

The gross sales of package candies handled under the soda water section was remarkably close to the previous year's figures, and the net profit was practically the same.

Gate Receipts: Revenue from paid admissions at the entrances was \$20,017.90, which total has only been exceeded in two previous years. The entire amount was remitted to the Improvement and Repair Account and devoted to carrying on the 1928 Improvement and Repair Program.

Transfers were made to the Improvement and Repair Account from the General Income Fund, for alterations and repairs to the Monkey House, to the Small Mammal House, and for the purchase of Vita Glass, amounting to a total of \$22,500 which, added to the gate receipts and the balance from the previous year, gave a total available of \$43,686.23 in the Improvement and Repair Account, from which expenditures of \$20,816.31 were made, leaving a balance of \$22,869.92 carried to 1929.

Guide Book: The increase in the sale of Guide Books over the year 1927 was largely due to their having been off sale for a part of the previous year on account of unavoidable delays in getting out the new edition. The present quarter-century edition which was put on sale in 1927, has broken all previous records in sales and was entirely sold out before the end of the year. It was necessary to hurry through another edition in September, of which several thousand copies have already been sold. Sales for 1928 reached about 20,000 copies.

Miscellaneous Publications: Sales of Souvenir Postal Cards and the profits thereon showed an excellent increase, about 400,000 cards being disposed of during the year. The large edition printed last year was reduced to a point where it will probably be necessary to consider a new edition early in 1929.

The third edition of A Child's Book of Wild Animals, formerly "Wild Stamp Primer," was exhausted, and arrangements were made late in the year for the publication of the fourth edition of 10,000 copies, nearly 2,000 of which were sold. To meet the views of some critics of this publication, the method of printing illustrations on separate sheets in the form of stamps to be pasted in position by the children, was abandoned, and the four-colored pictures were printed in the book. This arrangement has some advantages, but we have always thought there was much to be said in favor of the previous method, and we may find it desirable to go back to it. The sales to date of this Child's Book place it in the class with the best sellers, sales having considerably exceeded 30,000 copies.

On the items of Souvenir Book and Animals in Art Stamps there was an encouraging increase in both sales and profits.

Riding Animals: Gross receipts in this branch of the Privileges made a substantial gain, but the net showing did not quite correspond with the gross gain due to our having assumed some additional expenses not previously carried. All things considered, the operation of this Privilege for the season was quite satisfactory. There were no accidents, except of a very minor nature, and complaints from patrons were reduced to a minimum.

Baby Carriages: The opportunity for mothers to secure baby carriages at the nominal rental of 25c for three hours seems to be appreciated by those who take advantage of this service. The wear and tear

on the equipment, however, is heavy. During the year it was necessary to add fifty new carriages. In purchasing these we selected a plain and substantial type best suited to our service. A complete and careful overhauling is being given to the entire equipment during the winter season.

DEPARTMENT OF FORESTRY AND CONSTRUCTION

CHARLES J. RENNER, Chief Constructor and Engineer; FRED W. MINGST,
Assistant Constructor; MICHAEL E. O'KEEFE, Assistant Forester;
GEORGE SKENE, Head Gardener

Maintenance and general repairs have proceeded during the past year with good work from all of our men. As a result the park is keeping, and in many respects improving its good appearance, though, at the same time, it is subject to an ever increasing wear and tear because of its age and the millions of visitors, and those who thoughtlessly or otherwise do unnecessary damage.

Because of special appropriations from the Zoological Society, aid from the A. I. C. P., from men whom they sent to the Park gratis after paying their wages, together with the usual co-operation from the other departments, and additional funds secured from the City of New York, this Department was enabled to carry on with more men than usual and to do considerably more work. There is, however, need of continuing the above, because without such aids the Park cannot move forward in the matter of its maintenance, repairs and replacements. A steady and sufficient amount of men and materials are always necessary.

In addition to the routine work of cleaning, heating, trucking, planting and the vast number of small but important jobs that come to our attention during each year, the forces of the department working directly against maintenance accounts, Park Improvement & Repair accounts and Special Society Accounts, completed work described below:

Fences: The entire ornamental fence surrounding the Goose Paddock was taken down and rebuilt. New fences were placed at the Axis, Sika and Asiatic Deer corrals, the Yak, Buffalo and Camel corrals and extensive repairs were made to the Small Deer, Musk Ox, Wild Horse, Llama and Elk fences, in all 2,830 feet. Several tons of new guard wire were also stretched throughout the Park and 400 new guard posts set.

Cages: Extensive repairs were made to the Cockatoos' cage, Flying Cage, Pygmy Hippo Cages and the Lion House shifting cage. New, enlarged and modern cages were erected within the Mammal House, the old cages being dismantled and abandoned.

Walks: After general repairs to most of the walks, the following were surfaced with screenings and tar: South Lake Agassiz Walk, Osborn Walk, Marsh Garden Walk, Main Service Road, North Service Road, Audubon Court, West Mountain Sheep, Rockingstone Hill, East Elephant Walk, Llama Walk, North Elk Walk, Beaver Valley Walk, Concourse Circle and Entrance Drive; in all 27,000 square yards. There was erected a stone-screening plant operated by gasoline power and covered with a neat building, in connection with this work.

Railings: A two-pipe railing was built along the walk bordering the east bank of the Bronx River and similar railings were built along the east side of Baird Court, and at the east end of the old Bronxdale Bridge.

Carpenter Work: The old rabbit house at the Nursery was converted into living-quarters, which enabled the night man's services to be utilized in a more productive manner than formerly, besides saving much time of the other nurserymen from reliefs. Ice breakers were built on the newly completed Elephant House roof. A special cage, to care for the Gorilla, was built within the Hospital, and new roof coverings were laid upon the Axis Deer, Bay Tree and Brooder houses. About 200 benches received new boards and general repairing.

Boilers: The principal boiler and heating work consisted of renewing the return system in the Boat House and the Bird House, erecting a new boiler in the Ostrich House, replacing two sections in the Antelope House boiler and one section each in the Elephant, Lion, Bird, Hospital and Tea House boilers. Unfortunately, whenever a section cracks it is necessary to take apart a boiler and set it together again, which involves much work. Surprising as it may seem, a percentage of the breaks develop in the summer when the boilers are not in use. These are generally due to corosion and old age.

Plumbing: The water supply system was replaced in the Large Bird House and the hot water supply in the Lion and Elephant Houses. Besides the above, plumbing fixtures were installed in the living quarters at the Nursery, new basin connections throughout the Small Deer House, and necessary repairs were made at the Antelope House and the various comfort stations.

Parking Space: The large Parking Space at the Buffalo Entrance was completed. It covers an area of about $2\frac{1}{2}$ acres. It was carefully graded and is self draining. However, eventually there must be a main pipe line built through it to carry off the water from the whole of the Beaver Valley, Boston Road and vicinity. The City sewer which now cares for the neighborhood is too small, with the consequent backing up of the water from other areas after every heavy storm.

Painting: Painting work was helped by the addition of many men sent by the A. I. C. P. Outside iron work, not touched for years, was this season cleaned, painted and made to look new again. Guard rails, guard posts, flag poles, small fences, and more specifically, the 182d Street boundary fence, the 2,830 feet of new range fences erected, the Antelope, Elephant and Zebra corrals, the Crane and Goose paddocks, the Seal and Sea Lion pools, the Fox and Wolf dens, the Prairie Dog and Turtle Yard enclosures were among the work finished. The structures and buildings renovated and painted consisted of the outside cages of the Lion, Primate, Mammal, Aquatic and Large Bird houses, also the Pheasants' aviary, the Elephant Building and the Nursery Houses. These renovations kept the ironworkers, carpenters, plumbers and other mechanics busy as well as the painters.

Gardening and Forestry: Approximately sixty decayed and dead trees were removed, including one which was destroyed by lightning. Most of these trees were on the east side of the Bronx River. There is always much work, especially pruning, to be done there because the trees are large and old. This part of the Park each season presents much labor, exterminating caterpiller nests, especially on the wild cherry trees.

New plantings of Barberry (Thunbergii) were made along the Bronx River opposite the Boat House, where last year's earth fills were made. In front of the Boat House itself, young flowers and shrubs were planted, similar to the design there before the previous shrubs and trees had become overgrown. A new garden was made in the triangle near the Pony Track. The Italian Garden, at the Concourse, was planted with the customary yellow pansies in the spring, followed by dwarf salvia, edged with abutilon.

DEPARTMENT OF PHOTOGRAPHY AND PUBLICATION

ELWIN R. SANBORN, Editor and Photographer; Annie R. Newman, Assistant; EDWARD R. OSTERNDORFF, Assistant Photographer

Photography: The usual photographic work was pursued through 1928, including a diversity of subjects some of which are as follows: American bison, Prjevalsky horse, Russian bears, California sea lion, Cape fur seal, eastern chipmunk, gray squirrels (series), spot-nosed monkey, tufted capuchin, golden baboon, galago, woolly sapajou, gorilla (imm.), Himalayan tahr, Punjab sheep, aoudad, Bactrian camel and greater kudu; Cereopsis geese, Humbolt penguin, African white-necked stork, white-bellied stork, kagu, Javan fish owl, yellow-shouldered Amazon parrot, golden eagle, woodcock, and nests of satin bower bird and pea fowl; Bothrops rattlesnake, vine snake, karung, green whip snake, stripe-headed snake, ring-necked snake, black mamba, Russell viper, Regal python, marine iguana, Australian monitor, desert iguana, glass "snake" and horned toad, a total of over 500 negatives.

Views were made of construction work, newly completed buildings and the parking space on the Boston Post Road. Assistance was given to the Veterinary Department in photographing operations, gross specimens and in the making of pictures of the growth of deer antlers.

In addition on several occasions we were afforded the opportunity of photographing for the Park Department on several projects that were being developed in the Pelham Bay Section.

The outstanding event of the year was the trip to the Galapagos Islands with the Director of the Aquarium, where for the first time an experience was gained in work far from dark rooms and the ready facilities of civilization.

The difficulties encountered in this class of photography were both astonishing and varied. When the scorching tropic heat had reduced human ambition to the merest shreds of mute resistance, and the sunbaked lava-boulder trails had nearly finished the destruction of the physical forces of the hardy explorers, the peaceful Pacific took to its heaving bosom the shattered fragments and proved that it is always the unexpected that always happens.

The ship lay at anchor off lower Albermarle, a mile, possibly two; the land, barely visible, a faint pale streak, low, flat and hazily screened

in a thin blue mist; a gray pastel of tone resting as lightly on the rim of the sea as a mirage on the sands of the desert.

Far back, twenty miles perhaps, rising above the haze, ranged a line of ragged volcanic peaks which in some very ancient time had burst open and scattered their lava streams over the surrounding land—even to the sea and frequently far into it.

The heavy ground swells raced swiftly past, heaving the ship with a sickening roll and speeding on to mingle with the breakers, tossing in a white collar of billowing foam as they pounded the lava ledges a half mile off shore.

The launch—a ship's dingy with an installed motor, carrying the photographic apparatus and five persons, sped away from the ship, landward bound.

In a running tide with a stiff breeze kicking up a choppy sea, the small craft labored to carry her load and drag the landing skiff towing aft. The ship dropped quickly astern, a mammoth, swaying bulk, shaking the water from its streaming sides like some huge sea mammal; now riding high, now low; swiftly shrinking to a toy ship until it slipped into the haze and disappeared behind the swells.

As objects on the shore became more clearly visible and swiftly separated into solid tangible forms, the thundering voice of the raging seas tearing over the barrier of the reef carried a message of warning; a message that the greenest lubber under the sea might understand.

There was one way—the safe way—to get through into the harbor, but the bo'sun—A.B. and a good sailorman—who had charge of the boat selected the other; a meek suggestion from one of the men who had been through the week before, indicating the proper course, was received by the bo'sun with cold disdain.

The barrier of seas, which appeared as a continuous line from the launch really broke at varying distances from the shore where the submerged ledges made the water shallow. Between these shoals were depths over which the seas rolled free until another shoal was encountered where they broke again, with terrific force.

At one place, by circling around the end of the outer reef, a clear passage over a great depth between two lines of breakers made a safe channel into harbor. The bo'sun turned in the opposite direction, and shifting his helm skirted the outer line of breakers encountering a beam sea as well as a rough chop; the launch frequently missing a beat of the propeller and taking the tops of the seas over the weather rail; it was sloppy and wet.

Ahead, several hundred yards, was landlocked harbor picturing safety, around the boat on both sides smothering lines of breakers; these from the seaward rolling in precariously near.

The passage through this perilous place was almost over when one of these huge seas, crowned along its curling top with a narrow wisp of foam, passed the outer barrier and with dazzling speed came streaking toward the launch.

For a breathless moment, in the shadow of that ominous rushing wall, the boat seemed to drop toward the bottom of the sea with terrifying velocity. The breaker thinned out, stretched and rearing its roaring crest higher and higher swept the boat up under the curving green wall, and literally buried it under tons of water. The launch went to the bottom like a plummet as did everything in it too heavy to float; the skiff towing astern fortunately snapped the painter and floated full of water.

Mr. Gaddis manned the boat and rescued his comrades—two of them—deep water sailors, being unable to swim. The bo'sun was one of them, and he must have been born under a lucky star for he needed all his luck that day.

After rescuing every man, he cleverly kept the skiff out of the seas that were breaking all around, tumbling one over the other like a pack of hungry wolves pursuing their prey, until the settlers got through to the marooned mariners with their heavy surf boat.

It was due entirely to the energetic Mr. Gaddis, a very resourceful and cool-headed man, that this incident did not have a tragic end. The accident happened nearly a half mile from shore in a situation that would have taxed the ability of a powerful swimmer not alone to make the land but to get through the crossfire of breaking seas. And these waters too are infested with sharks of doubtful reputation. It was a good time and place to have settled the contentions of two famous scientists as to the character of the sharks' gastronomic preferences; unfortunately, however, the explorers were vitally concerned with other matters and could not tarry.

All of the photographic appliances, including the delicate motion picture apparatus, sank in twenty feet of water and that which was salvaged was so badly damaged by salt brine as to be useless for the balance of the trip; and the films and plates, some bearing exposures, were entirely destroyed.

Landing along the shores of any of the Islands is fraught with hazards; sand beaches are sporadic and guarded by barriers of eternity-old lava flows, and over these the Pacific's most peaceful swells sweep with savage, resistless force. And when the land is once made, it is but to step into chaos; a birthright of gigantically ponderous forces, sullenly defying progression or penetration.

Waterless, treeless, fruitless wastes; forbidding inhospitable; wrapped in that deathlike pall of silence foretelling the coming storm; and gloomily prophetic of the potent slumbering forces within from which they were conceived—Omnipotent—unconquerable Galapagos.

Much interesting material is available about these islands, and a photographic story both new and of scientific value remains to be told.

To conquer the treacherous lava fields, and survive the fatigues of travel in the oven-like air, demands endurance of noble proportions.

To faithfully photograph the Galapagos requires an abundance of assistance to transport apparatus and a singleness of purpose in its accomplishment.

Bulletin: The regular Bulletin issues were published during the year and in as many instances as possible the supplement of various large animal groups was made the leading thought.

This publication is vital to the needs of the Society and the demand for it among various other subscribers in distant lands is so insistent as to prove its values.

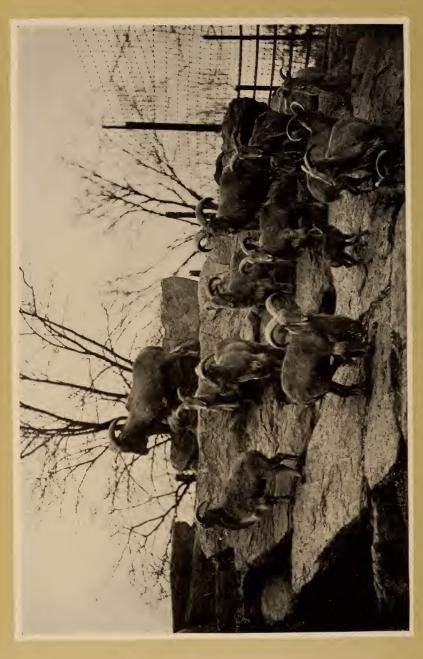
Natural history articles are difficult to obtain, and the numerous magazines that demand such material absorb the articles of the men that devote their time to this class of work.

From one correspondent in Australia, we have been supplied with several articles of unusual interest, but the Park and Aquarium still remain the most certain and profitable fields.

Zoologica: Contributions to Zoologica are more numerous; the Society's interest in general scientific research has encouraged the produc-



Grevy Zebra, Equus Grevyi

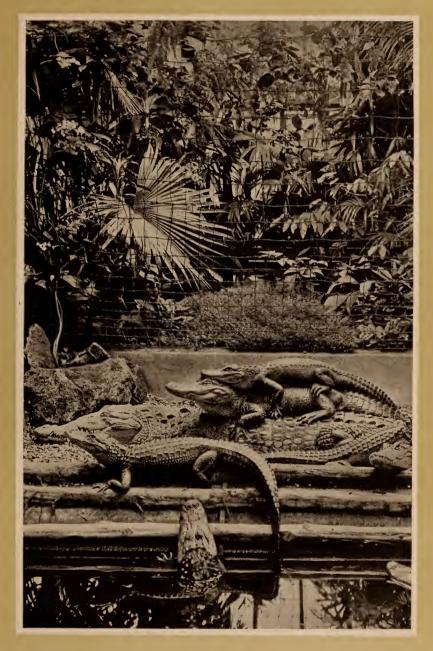




Punjab Sheep. New to the Collections



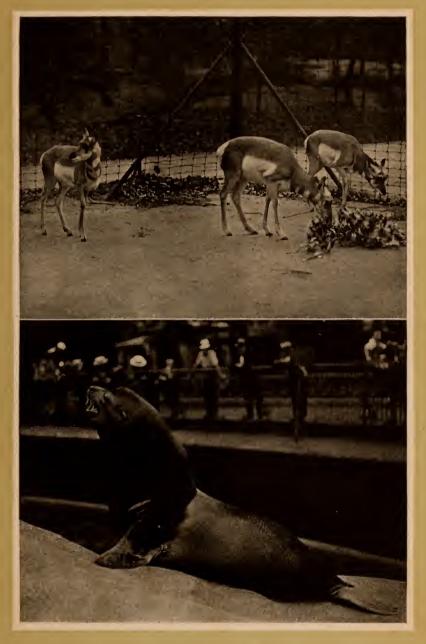
Punjab Sheep, and lamb born in the Park. New to the collections.



A portion of the Alligator Pool; Reptile House.

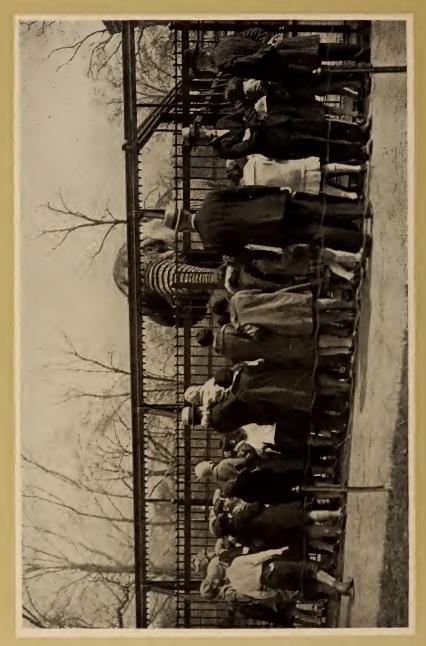


Giant Horned Toad, Ceratophrys dorsata. New to the collections.

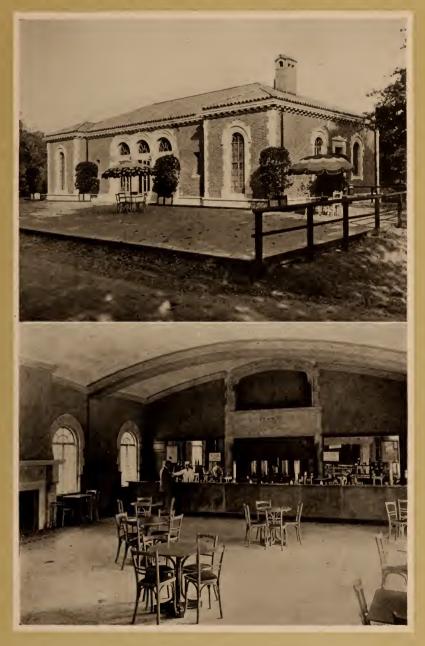


Upper: American Prong-horned Antelope. Lower: California Sea-lion. New to the collections.



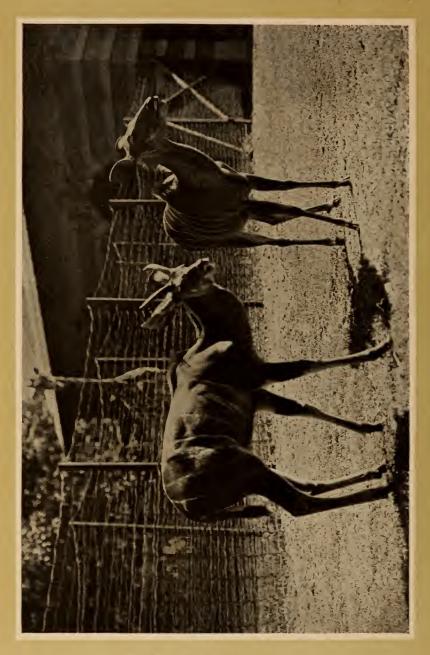


Thirty-third Annual Report



New Refreshment Building, exterior and interior. Privilege Department.







Australian Crane. Mathewsia rubicunda.

Kagu, Rhinochetus jubatus.

tion of work in various fields, and to the extent of its funds has issued papers of permanent value during the past year, as follows: Zoologica: Vol. 7, No. 4, A River Dolphin from Kartabo, by Samuel H. Williams, 24 pages, 12 figures; Vol. 8, No. 6, Studies on the Body-Form of Fishes, by William K. Gregory, 82 pages, 38 figures; Vol. 8, No. 7, An Annotated List of the Synentognathi, by J. T. Nichols and C. M. Breder, Jr., 24 pages, 21 figures; Vol. 8, No. 8, Polychaetous Annelids, by Aaron L. Treadwell, 38 pages, 3 figures; Vol. 8, No. 9, Sea Stars, by W. K. Fisher, 8 pages; Vol. 8, No. 10, Scyphomedusae, by Henry B. Bigelow, 32 pages, 5 figures; Vol. 10, No. 1, The Fishes of Port-au-Prince Bay, Haiti, by William Beebe and John Tee-Van, 280 pages, 268 figures and 1 plate; Vol. 11, No. 1, Haematology of the Camelidae, by Eric Ponder, J. Franklin Yeager and Harry A. Charipper, 8 pages.

Zoopathologica: Vol. 2, No. 1, The Treatment of Fish Diseases, by Ida Mellen, 32 pages.

Mailing: The distribution of the publications and various other items of the Society's work has been very well systematized and is carried on with the usual meticulous care.

Despite all the pains taken to insure safe delivery of mail subscribers frequently complain that invitations and publications have not been delivered.

We can only state that the addressing is done by mechanical means, and that all bulk mail matter is delivered directly into the Post Office near the Park.

It is practically an impossibility for any member's name to escape the operations of the machines and the failure to receive letters, invitations or publications is due to faulty delivery or through improper address.

Many persons fail to notify this department of change of address, and in such instances all second class mail is returned to this office, and cannot be delivered until the correct address is known. Whenever possible, we send a request by letter post asking for a proper address, and then must trust that the communication reaches the proper destination.

Nearly 30,000 pieces of mail were sent out from this Department during 1928, and by continuous application in correcting defective addresses the percentage of returns was appreciably less than last year.

Publicity: Through the medium of the Bulletin's subscription list, foreign publications re-issue the more important items and pictures; much valuable publicity is thus given the Society throughout the continent of Europe by the more important newspapers, and many of the leading magazines.

A review of the photographic work, classified under various distributional headings is appended:

Prints—Park and Aquarium (New)	450
Prints—Publication	618
(Includes 100 enlargements.)	
Prints—Personal Reference	1,309
Lantern Slides	69
Total	2,446

DISTRIBUTION OF SPECIMENS FROM THE ZOOLOGICAL PARK

REPORT OF

THE DEPARTMENT OF COMPARATIVE ANATOMY AMERICAN MUSEUM OF NATURAL HISTORY

H EREWITH I submit my report of specimens received from the New York Zoological Society during the year 1928 and the distribution of this material to the Museum, to the College of Physicians and Surgeons of Columbia University, and elsewhere.

Of the total number of 407 specimens received, 393 came from the Zoological Park and 14 from the Aquarium. The latter consisted of three harbor seals, three sea-lions, one alligator, one turtle, one penguin, two cormorants, one white-bellied gannet and two nurse sharks.

The number of specimens received during each month were as follows:

NEW YORK ZOOLOGICAL SOCIETY

	Specimens		Specimens
January	. 19	July	
February	. 11	August	
March		September	42
April	. 9	October	
May	. 25	November	72
June	. 29	December	
Total			407

The distribution of the material received from the Zoological Park and Aquarium was as follows:

Department of Mammalogy	53
Department of Herpetology	136
Department of Ornithology	118
Department of Comparative Anatomy	53
College of Physicians & Surgeons, Columbia University	16
Hunter College	1

Museum of Comparative Zoology, Cambridge	1
Not utilized	8
	407

This material has been of great service in the following investigations, some of which have been continued since my report of last year:

Dr. Frederick Tilney and Dr. H. A. Riley—Researches on the morphology of the brain in mammals.

Herbert C. Ruckes—Studies in Chelonian Osteology. Part I: Truss and Arch Analogies in the Chelonian Pelvis. (Received the A. Cressy Morrison prize of \$250 awarded by the New York Academy of Sciences.)

Herbert O. Elftman—Functional Adaptations of the Pelvis of Marsupials.

Harriet C. Waterman—Researches on the comparative anatomy of the primate pelvis.

Dr. Dudley J. Morton—Researches on the comparative musculature of the human and the gorilla foot.

H. C. Raven—Researches on the anatomy and physiology of whales.

Dr. Ernest Huber-Researches on the facial muscles of the gorilla.

Dr. Ashley-Montagu—Researches on the comparative anatomy of the shoulder-girdle.

Dr. William K. Gregory—Series of publications on the evolution of the human skull, face, jaws and dentition and on the evolution of the upright posture of man.

WILLIAM K. GREGORY, Curator.

REPORT OF THE PENSION BOARD

To the Board of Managers

THE Pension Board, under the Chairmanship of Dr. Lewis Rutherfurd Morris, held its meetings as in previous years at the office of Mr. Cornelius R. Agnew, Treasurer, 16 William Street.

The personnel of the Board remained unchanged, as follows: Dr. Lewis R. Morris, Chairman; Mr. W. Redmond Cross, Vice-Chairman; Mr. Cornelius R. Agnew, Treasurer; Mr. H. R. Mitchell, Assistant Treasurer; Mr. Lee S. Crandall, Secretary; Dr. W. Reid Blair, Mr. George C. Clark, Jr., Mr. William B. Osgood Field, Dr. George Bird Grinnell and Dr. Charles H. Townsend.

During the absence of Mr. Crandall on the Zoological Society's expedition to New Guinea, Dr. W. Reid Blair was elected Acting Secretary.

The only items of business coming before the Board during the year were the election of new members to the Pension Fund and the granting of one retirement and two widows' pensions.

At his own request Adam Brinker was granted a pension on account of superannuation after a service of nearly twenty-one years in the Zoological Park. Widows' pensions were granted to Mrs. Mary von Hagen, widow of Charles von Hagen, label writer, with a service record of over twenty-one years, and to Mrs. Josephine Snyder, widow of George Snyder, Bird House keeper, with a service record of over twenty-four years.

With the granting of these pensions the total number of pensioners at the end of the year has grown to twenty-one, ten of whom are retired employees, two are widows of pensioned employees and nine widows of employees. This pension list calls for a monthly disbursement of \$1,131.38. There were no deaths among the pensioners during 1928.

For the first time since the fund was established there were no resignations during the year due to members leaving the employ of the Society.

Sixteen new members were added to the fund during the year, two of them being employed at the Aquarium and fourteen at the Zoological Park. Two members reached the age of sixty-five years, thereby exempting them from further payment of pension dues.

The membership of the fund at the close of the year was 125.

Receipts from all sources increased \$1,355.55 over 1927 and disbursements increased \$1,426.69. However, the fund was able to show a net gain in resources of \$6,084.32 for the year, bringing the total resources on December 31, 1928, up to \$144.897.70.

Respectfully submitted,

Lewis R. Morris, Chairman. LEE S. CRANDALL, Secretary.

REPORT OF THE DIRECTOR OF THE AQUARIUM

By Charles M. Breder, Jr. Research Associate¹

THE activities at the New York Aquarium during the year of 1928 were, in certain respects, of a somewhat different nature than those of many preceding years. Some were forced on the staff by unusual circumstances and some were entered upon with the purpose of the improving matters pertinent to the welfare of the varied collections on exhibition. Consequently, the bulk of the present report is given over to the more interesting details of such efforts.

As noted in the report for 1927, Dr. Townsend visited the Galapagos Islands as leader of an expedition in search of the remaining Galapagos tortoises. This trip occupied most of the spring and early summer. Although the story of the trip is told elsewhere² it may be mentioned here that the expedition was actually more successful in its search for these interesting and valuable tortoises than it even hoped to be. After the return of the expedition with 182 specimens, Dr. Townsend concerned himself with the establishment of numerous colonies in suitable places. These colonies range from Panama and California to Bermuda. At this writing they are doing well and the tortoises have all shown a definite and in some cases a remarkable growth.

THE LIVING EXHIBITS

The collections of the Aquarium numbered as follows on Dec. 31, 1928.

	Species	Specimens
Mammals	2	8
Birds	5	11
Reptiles	19	178
Amphibians	11	60

¹ Prepared for the Director, Dr. C. H. Townsend, engaged in other matters at this time.

² For details of this expedition, its purposes and early results, see the September-October Bulletin.

Fishes		2,875 873
	203	4,005

This list does not include various small fishes and invertebrates available as food for the large forms and for other purposes. Although the total number of specimens falls below last year by 433 the number of species exceeds last year by 5. A peculiar epidemic which infected the marine collection accounts for the decrease in number of specimens and although several species were completely annihilated the collection was so large and varied that it was unable to reduce the number of species to that of last year. The details of this epidemic, new in our experience, are discussed further on.

Specimens of Note: The South American Lung Fish (Lepidosiren paradoxa) has entered its second year and now keeps in good health.

A number of specimens of the African Lung Fish (*Protopterus annectens*) and a Polypterus (*Polypterus senegalis*) brought from Egypt by Dr. Homer Smith lived for several months. The latter and some of the former succumbed finally to some bacterial infection, which may have been some local organism that they were not adapted to withstand.

After a nearly complete absence of seahorses for two years they began reappearing in fair numbers at Sayville, L. I., in the late fall. This absence seemed to be general for inquiry failed to bring any to light as far south as North Carolina. It is a satisfaction to be able to display this popular species again.

Two electric eels (*Electophorus electricus*) were acquired. Their manner of killing prey is a constant source of interest. As they swim toward a school of small fish they discharge their "battery," stunning the fishes and then proceed to swallow them. If the minnows are not to their liking they do not touch the little fishes which shortly revive and seem to be none the worse for their experience. A finger plunged in the water when these peculiar fishes are hungry will receive the same shock as a preliminary and it is usually severe enough to stimulate an involuntary withdrawal.

The Brazilian Half moons (Pterophyllum scalare) are living well and growing rapidly. We have since learned that the London Aquarium

is having similar success in keeping them in running water, having arrived at the same conclusion separately.

A tarpon of about 5 feet in length was taken in Sandy Hook Bay during August. It lived for a little over one week.

Fish Hatchery: Aside from the usual fish cultural demonstration, a model "fish-ladder" or "fish-way" was installed. This was constructed by Mr. Thomas Howley, under the direction of Mr. Breder, and was placed in operation in the early part of the year. It was used by fingerling Pacific Salmon and was a pronounced success and caused considerable favorable comment. The little salmon soon became so adept, that every other "step" had to be removed, giving them higher leaps, to prevent them from all reaching the top in less than an hour.

Fish Eggs Donated for the Hatchery

By U. S. Bureau of Fisheries:

2,270 Chinook Salmon, from Washir.gton

15,000 Black Spotted Trout, from Montana

25,000 Steelhead Trout, from Washington

10,000 Brook Trout, from West Virginia

10,000 Rainbow Trout, from West Virginia

By California Fish & Game Commission: 25,000 Golden Trout from California.

The results of the work of the hatchery were distributed as follows:

Brook Trout (Fingerlings) to Interstate Park.... 25,000

Chinook Salmon (Fingerlings) to Interstate Park... 1,500

Steelhead Trout (Alevins) to Interstate Park..... 24,000

Golden Trout (Eggs) to New Jersey State Hatchery,

Black Spotted Trout (Eggs) to New Jersey State

Hatchery, Hackettstown, N. J................................. 15,000

Work of the Collecting Boat: The collecting boat Seahorse passed through her ninth year with the usual amount of service rendered. In all 21 trips of from 2 to 3 days duration were made to local points.

A more satisfactory electric lighting system was installed in the cabins providing for the men's greater safety and comfort. As last year,

Mr. M. King, the collector, undertook the management of this phase of the collecting work.

Collections by the Staff: Three trips were made to Key West, Florida, for the collection of tropical fishes. Two were made jointly with the Boston and Detroit Aquariums respectively. Mr. Shea undertook these as heretofore and Mr. Breder accompanied him on the last for special reasons noted elsewhere. Numerous local fresh water collections were made by the staff.

Boarded animals: Two sea lions were boarded during the cold months for the Central Park Zoo and four harbor seals for Young's Million Dollar Pier of Atlantic City. These were welcome additions to the floor pools.

PUBLIC RELATIONS

Attendance: Again a notable increase in visitors is reported. A total attendance of 2,469,518 is recorded as against 2,129,305 for 1927 or 340,213 more persons. This is within 100,000 of the more easily explained increase of 1927 over 1926.

Gifts: Among the more noteworthy gifts to the Aquarium during the year may be mentioned the following:

Mr. W. K. Vanderbilt presented the Aquarium with three Galapagos Penguins, seven Sea Iguanas, three Pacific Boobies and three Flightless Cormorants. These were collected on a cruise of the Yacht "ARA."

Mr. Henry D. Whiton presented 100,000 gallons of pure sea water.

The Tuxedo Club presented a fine collection of Rainbow Trout from their hatchery.

Young's Pier Corporation of Atlantic City, N. J., presented a collection of miscellaneous marine fishes collected at that place.

The Horrocks-Ibbotson Company, Utica, N. Y., presented an interesting collection of fishing tackle for display at the Aquarium.

Schools: Teachers to the number of 477 brought an aggregate of 10,425 pupils in classes for purposes of study. Primary school, secondary school and college students were represented in this number. To some of these Miss Mellen rendered docent service.

Both living and preserved material was supplied to teachers requesting it as long as such was available. As usual, the demands exceeded the supply. Some special provision will have to be made for the proper collection and retention of material if this service is to keep pace with the growing interest of schools in nature study.

Lectures: Miss Mellen delivered eight radio talks over Station WNYC and one over Station WEAF, as well as an illustrated lecture to the Alden Kindred Society. She also partook in the making of four educational motion picture films, one a "talking picture."

Cooperation with Other Institutions: As in former years, dead specimens, not useful for our own experimentation were distributed among various institutions to which they were of interest. Most of the more valuable specimens went to the American Museum of Natural History. Some interesting forms went to the Montefiore Hospital for its collection of animal brains.

The Seahorse was used in assisting the U. S. Bureau of Fisheries to collect data for their present investigation of the marine fisheries of the Middle Atlantic States. Mr. Albert Redmond, who at other times was engaged at the Wyanokie Zoological Station accompanied the "Seahorse" on most of her trips, employed at such times to make observations of a statistical nature for the Bureau.

The American Society for the Prevention of Cruelty to Animals of New York was assisted by Miss Mellen in the preparation of their leaflet No. 35 for distribution among purchasers of goldfishes.

The Aquarium assisted in transshipping several hundred *Gambusia* for Mosquito control to the Bermuda Department of Health. These were donated by the U. S. Bureau of Fisheries.

The following gifts were sent to European institutions: 19 Horseshoe Crabs to Monaco; 15 Horseshoe Crabs to Berlin; 4 Bony Gars to London.

American Museum's Hall of Fishes: At the opening of the new hall of fishes of the American Museum of Natural History there were on exhibition a number of the original color plates depicting the color changes of various tropical fishes by several artists which had been executed under the direction of Dr. Townsend for his forthcoming paper on that subject.

A permanent exhibit, based on Mr. Breder's study of the locomotion of fishes, included the original apparatus on which his conclusions were based.

Police Regulations: During 1928 more than the usual number of distinguished visitors were greeted by New York City, each of which caused great crowds to congregate in Battery Park. The Aquarium, as an affected institution, wishes to express its gratitude to the Police Department for the splendid manner in which they controlled several situations which might have easily gotten out of hand. We also want to extend our especial thanks to Inspector Mulrooney and his detectives and police women for their fine work in the apprehension of undesirables.

THE BUILDING AND EQUIPMENT

Several of the improvements to the building mentioned in last year's report are still to be realized but it is with considerable satisfaction that we are able to note the following, even though many of them are of such a nature as to not be very evident to the casual visitor: Seahorse bas-relief over entrance; gratings in lower windows; reservoir completely relined; fire protection system; laboratory dark room.

All except the first item have been provided by the City through contracts.

Seahorse Plaque: The seahorse emblem executed by Gertrude Boyle Kanno was placed over the front entrance, considerably enhancing the appearance of the front of the building.

Casts of Fishes: Several celluloid casts of large fishes, never to be seen in our tanks, because of their size, have been hung in the centre arches with rather pleasing effect.

New Pyramid Grates: On December 7, 1927, the Aquarium entered into a contract with the Pyramid Iron Products Co., for the installation of three new grates with forced draft equipment, allowing the use of buckwheat coal at \$6.40 per ton instead of the formerly used broken coal at \$14.00 per ton. This has effected a great saving, going even beyond our expectations. For the year 1928 the saving amounted to \$3,250.71 or 47 per cent. From this saving \$1,800 went for the payment of installing the grates and the balance was made available for other codes through transfers approved by the Board of Estimate and

Apportionment. In addition to being a great saving financially, it has been found to give more efficient service with very little, if any, additional labor.

Reservoir Repairs: The sea water reservoir which had become leaky after 19 years service, was completely and satisfactorily relined by the City and new valves and piping adjacent thereto were installed.

New Sea Water: Because of the peculiar epidemic discussed elsewhere and the complete relining of the reservoir it was imperative that we discard all the old sea water. For the second time Mr. Henry D. Whiton presented the Aquarium with a supply of this very necessary fluid, one of the Union Sulphur Company's steamers bringing 100,000 gallons. Incidentally, examination showed it to be chemically the most satisfactory sea water that we have ever received.

Budget: The City of New York provided a maintenance fund of \$68,111 for the year 1928. In addition to this the City appropriated the sum of \$20,000 for special repair work noted elsewhere. A number of the items included had not been completed by the end of the calendar year. The New York Zoological Society provided from its own funds the sum of \$10,776.84 as additional compensation to employes of the Aquarium and \$2,912.97 for providing additional exhibits.

EXTRA-MURAL ACTIVITIES

The extra-mural activities of the staff were rather greater than in former years.

Galapagos Expedition: This expedition and the attention to details following it occupied Dr. Townsend to a considerable extent. It is discussed in the introduction to the present report.

Visits to the Detroit Aquarium: Mr. Breder visited the Belle Isle Aquarium in the spring as the guest of that institution. His objects were to give advice on certain matters and consider the methods employed there. A side trip was made to examine some of the Canadian Great Lake pound nets and their methods of operation. Later Mr. Howley made a similar trip for like reasons.

Key West Trip: The third collecting trip of the season to Key West, Fla., was made by Mr. Breder and Mr. Shea jointly. Mr. Breder's object was to examine local conditions, study methods and

consider a disease believed to originate from there. Data of various sorts, including a study of water and environmental conditions was made which will be useful from time to time as various questions and problems arise. (See under *Bacterial eye disease*.) Numerous photographs and natural history observations were made. The results of certain studies on flying fishes have been embodied in a paper now in the process of being published in Zoologica.

Children's Fair: Miss Mellen acted as judge of exhibits of fishes and seahorse life at the Children's Fair given at the American Museum of Natural History, October 17th.

Hagenbeck's Establishment: Mr. Howley visited the Hagenbeck animal "farm" at Nashua, N. H., to help them overcome some difficulty encountered with their goldfish. He found the trouble to be in connection with a rather sudden shift from decidedly acid to alkaline waters. This was a matter that could be easily corrected.

Artificial Ponds: Examination was made by Mr. Howley of three sites for proposed artificial ponds for private parties at the following localities: Ormont, N. Y.; Brewster, N. Y.; Lake Mahopac, N. Y.

A Field Book of Fishes: Mr. Breder has spent most of his spare personal time during the year in preparing a "Field Book of Marine Fishes" for the Putnam Company. This is about ready to go to press.

WORK OF THE LABORATORY

The Aquarium Laboratory which was just opened last year has managed to acquire a sufficient equipment to carry out some experiments of vital importance to the welfare of the collection at large. Although there are still many things to be desired, we cannot complain of nearly as an acute suffering from lack of apparatus as we did last year. Probably the most satisfactory addition is a dark room, both for biological and photographic work. Other additions include, proper shelving, desks, experimental tanks, chemical and optical apparatus, and various minor equipment. The laboratory work for the year may be summarized as follows.

Mr. Breder carried out the following work of an experimental nature.

Studies on Ultra-Violet Irradiations: Experiments were carried on throughout the year on the effects of the presence and absence ultra-vio-

let irradiations on inmates of the Aquarium, mostly fishes. Part of this work was done in collaboration with Dr. A. E. Hess of the College of Physicians and Surgeons and part independently. The results of these studies will be embodied in future technical publications but it may be mentioned here that the benefit of such irradiations under proper control and the deleterious effect of their absence was satisfactorily demonstrated. These include effects on health, fecundity and growth of fishes and turtles of various species as well as various minor effects on representatives of other groups. These studies have reached a point where it was deemed advisable to purchase outright an ultra-violet lamp of the utmost flexibility for "clinical" use. The preliminary work was carried on by means of such a lamp loaned by the Hanovia Chemical Company of Newark, N. J., to whom we are consequently indebted.

Work is now under way carrying these investigations into greater detail. The present studies involve the more definite delimitation of the "vital band" of the ultra-violet spectrum from the "sterilizing band" and a separation of any possible effect from the ozone incidentally generated by the mercury arc. For the use of certain calabrated filters we are indebted to the Corning Glass Works, Corning, N. Y., and for the use of an ozone generator to Stadstad, Hittinger and Stants, Inc., of New York City.

Chemical Analysis of Water: Further equipment for the proper analysis of water for aquarium purposes has been installed. We are now in a position to determine practically any chemical quantity that it is desirable to have an index of for Aquarium purposes. Since the acidity of our stored sea water has been continually noted by regular observations of the pH value and controlled, there has been a noticeable absence of certain ill effects that were not otherwise readily accounted for. This will form the bases of a technical report when more satisfactory methods for the control of acidity and the concentration of the various component salts of sea water and the dissolved gasses have been devised. Such studies are now in progress. We are indebted to Mr. A. E. Griffin of the New Jersey Water Supply Commission for data and assistance at the initiation of this work. Mr. Howley has been charged with the titrations and other determinations.

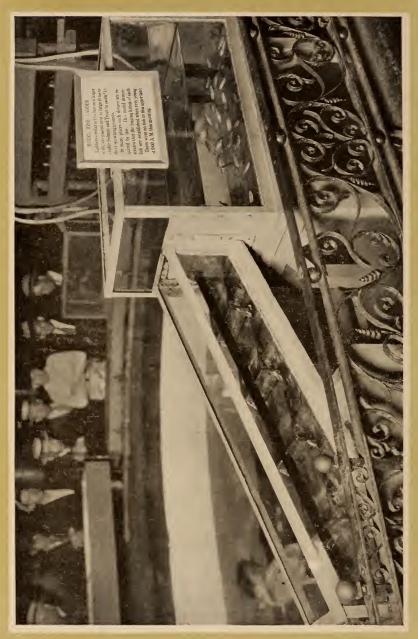
Bacterial eye disease: A peculiar eye disease of a bacterial nature was imported from Key West in the second shipment of the year. On

the third trip Mr. Breder accompanied the collector, Mr. Shea, and was satisfied that it occurred there in a state of nature as somewhat of an epidemic.

After a considerable amount of experimentation and an extremely heavy loss of valuable specimens a method was devised which entirely destroyed the bacteria and effected a cure of even specimens that we had little hope of saving at that time. Considerable credit is due to Mr. Hamilton Knowles, charged with the care of the marine fishes, for his part in devising the effective cure. The identity of this bacteria and its characteristics is being studied by Dr. A. G. Hall of the College of Physicians and Surgeons. When this is completed a full report will be made on its identification and control. Incidentally it may be mentioned that these bacteria have the peculiar habit of penetrating the eve ball and filling the aqueous humor, thereby producing at least temporary blindness. If not checked at once, or before this penetration the eye degenerates and sloughs away after which the socket usually heals up leaving the fish blind and helpless but otherwise apparently normal. Miss Mellen working quite independently and from another angle of attack found potassium permanganate to be useful for individual treatment. The work of controlling this disease which proved to be by far the most serious we have had to cope with, although satisfactorily concluded, consumed a great amount of time and attention. Although certain of the more valuable specimens, notably the large Jewfish (Promicrops) have recovered at this writing, at the start there was little hope of even saving them. The full control of the situation was obtained by discarding the entire contents of the reservoirs of sea water of high salinity and substituting water of New York harbor of low salinity. After this was done no new cases developed and those not too far gone recovered completely. After the system was cleaned out and the fishes healed we employed new sea water, presented by Mr. Henry D. Whiton with no reappearance of the trouble.

Visiting Students: The following parties used facilities at the laboratory at various times during the year.

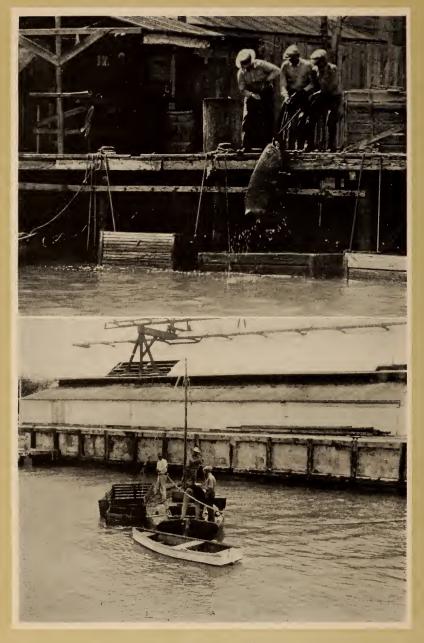
1. Dr. A. E. Hess, Miss Weinstock, Miss Rivkin, College of Physicians and Surgeons. Blood chemistry in reference to ultra-violet irradiata. (Continued from last year.) The New York Aquarium



Model Fish Ladder, at the Aquarium. Similar ladders are placed next to dams so that salmon and trout may ascend streams to spawn.



Collecting Tropical Fishes for the Aquarium. Upper: Cast net. Lower: Feeding fishes in live cars. Key West, Florida.



Collecting Tropical Fishes for the Aquarium. Upper: A Jewfish for the market. Lower: Towing live cars. Key West, Florida.

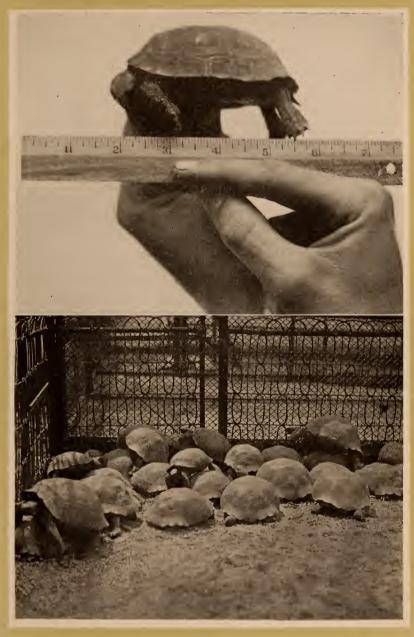


Collecting Tropical Fishes for the Aquarium. Upper: Aerating fish tanks on ship-board.

Lower: Arrival of collections at Aquarium.



U. S. F. Albatross II, anchored off Charles Island. Galapagos Expedition.



Upper: The smallest Galapagos tortoise. Lower: Tortoises in the Park to be farmed out. Galapagos Expedition.



- 2. Dr. Homer Smith, Bellview Medical College. Certain physiological determinations. (Continued from last year.)
- 3. Dr. Florence Wood, New York University. Certain Neurological studies.
- 4. Mr. R. A. Nesbitt and assistants, U. S. Bureau of Fisheries. Experiments in fish tagging and commercial fisheries investigation.
- 5. Mrs. R. B. Breder and C. R. DeSola. Studies on the behavior and growth of turtles.
- 6. Mr. Albert Redmond. Life histories of certain fresh water fishes.

PUBLICATIONS BY THE STAFF

The following publications, prepared by various members of the staff appeared in 1928.

C. H. TOWNSEND

The Director prepared both Aquarium numbers of the Bulletin without the usual contributions by staff members.

C. M. BREDER, JR.

Another record of the Fresh Water Jelly-fish. Science Vol. LXVII, No. 1731. March 2d. p. 242.

Fish Notes for 1927 from Sandy Hook Bay. Copeia No. 166. Jan.-March. p. 5-7.

Elasmobranchii from Panama to Lower California. Scientific Results of the Second Oceanographic Expedition of the "Pawnee," 1926. Bull. Bingham Oceanographic Collection. Vol. II. Oct. 1st, March. p. 1-13, figs. 1-12.

Nematognathi, Apodes, Isospondyli, Synentognathi and Thoracastraci from Panama to Lower California. With a generic analysis of the Exocoetidae. Idi. Vol. II. March. p. 125, figs. 1-10.

About Flying Fishes. J. T. Nichols and C. M. Breder. Natural History. Vol. XXVIII, No. 1. Jan.-Feb. p. 64-77. 3 colored plates and figures.

An Annotated list of the Synentognathi with remarks on their development and relationships. J. T. Nichols and C. M. Breder. Zoologica. Vol. VIII, No. 7, June 11. Contrib. 283 Dept. Trop. Research. p. 423-444. 5 colored plates, figs. 156 to 171.

On the Appetite of Amiatus calva (Linnaeus). Copeia. No. 167. June 28. p. 54-56.

The Barracuda (Sphyraena) dangerous to man. E. W. Gudger and C. M. Breder. Journal, Amer. Med. Soc. Vol. 90. June 16. p. 1938-1943, 5 figs.

I. M. MELLEN

The Natural and Artificial Foods of Fishes. Trans. Amer. Fish. Soc. 1927. p. 22.

The Treatment of Fish Diseases. Zoopathologica. Vol. 2, No. 1.

The Sick Fish. The Aquarist and Pond Keeper, Summer and Autumn number. London.

Water Invertebrates. In the New Human Interest Library. Vol. 2. Correcting that deadly alkalinity. Aquatic Life. September number. Aquarium English. American Speech, August.

Goldfish Mortality. The Pet Dealer, September.

WYANOKIE ZOOLOGICAL STATION

Under the first season of the New York Zoological Society's auspices this station carried forward its research program of studies on local forms. Less time was given to matters of equipment and management and more to the actual studies involved, and of these there was more concentration on a few that gave the most promise. They may be summarized as follows.

Turtle habits and reactions. Mrs. R. B. Breder, assisted for part time by C. R. DeSola.

Life histories of certain fresh water fishes. Mr. Albert Redmond under the supervision of C. M. Breder, Jr.

Homing instincts of toads. C. M. Breder, Jr., assisted by Albert Redmond.

The data accumulated on the first two of these problems are being prepared for publication.

Mr. Griffin of the New Jersey Water Supply Company collaborated in the matter of data on aquatic environmental conditions.

Bird banding under the direction of Mr. B. S. Bowish of the New Jersey Audubon Society was continued as time allowed.

A spring opening and a full closing meeting was tendered the Green Mountain Club at which considerable interest was aroused.

ATTENDANCE AT THE NEW YORK AQUARIUM BY MONTHS, 1928

January V	Visitor	s	123,916	Daily	averag	e	3,997
February	"		137,264	"	"		4,733
March	"		147,254	"	"		4,750
April	"		223,638	"	66		7,454
May	44		256,714	"	"		8,281
June	"		269,339	"	"		8,977
July	"		346,582	"	66		11,180
August	"		314,265	"	66		10,138
September	. "		222,451	"	"		7,415
October	"		187,409	"	"		6,045
November	r "		121,453	"	"		4,048
December	"		119,233	"	"		3,846
Total	"		2,469,518	"	"		6,766

Record of monthly mean temperatures and specific gravities and acidity of the water of New York Harbor at the Battery during year 1928.3

Te	mnerature	Hydrogenion Concentration (pH values)	Specific Gravity
January	44	``	1.010
February	46	7.4	1.011
March	46	7.5	1.011
April	50	7.7	1.008
May	56	7.4	1.011
June	60	7.6	1.010
July	68	7.5	1.009
August	71	7.3	1.011
September	60	7.4	1.012
October	60	7.4	1.011
November	59	7.4	1.014
December	50	7.5	1.014

⁸ From daily observations at New York Aquarium by S. C. Dunton and Thomas Howley. Specific gravity observations were made with the samples of water brought to a temperature of 60° Fahr. pH values read on a La Motte comparator. Not corrected for salt error, as being too small.

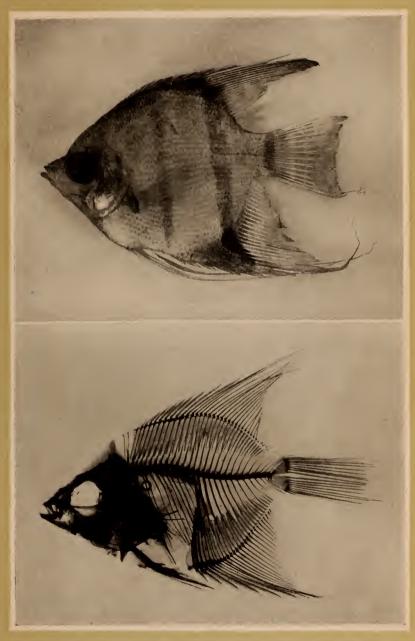




Upper! William Beebe in diving helmet in three fathoms of water. Lower: Two-foot Barracuda swimming past a coral reef in two fathoms. Enlarged from motion picture film.



Upper: Fishing a mile down; Arcturus winch and nets. Lower: Long-fanged viper-fish. Hudson Gorge, 100 miles off New York City.



Upper: Amazonian wing-fin. Lower: Transparent body of Wing-fin showing complete skeleton. This method has been developed to the extreme phase in Dr. Beebe's laboratory.



Upper: Acanthemblemaria arborescens, sp. nov., and Lower: Cremnobates argus, sp. nov.

Beebe-Tee Van. Two strange Bennies from Haiti discovered on the 10th

Expedition of the Society.

REPORT OF THE DIRECTOR

DEPARTMENT OF TROPICAL RESEARCH

By WILLIAM BEEBE, Director

Regular Staff: WILLIAM BEEBE, Director; John Tee-Van, General Assistant; Gloria Hollister, General Technician; Estelle Buffington, Laboratory Technician; Serge Chetyrkin, Preparateur

Research Staff for Arcturus and Kartabo Material: William K. Gregory; C. J. and M. P. Fish; Lee Boone; Dwight Franklin; H. P. Bigelow; A. L. Treadwell; C. H. Curran; S. H. Williams.

THE twelfth year of the Department of Tropical Research was one of constant work in New York City, varied by two short expeditions. The year's activities may be classed under five subdivisions: (1) Florida; (2) Hudson Gorge; (3) Research and Laboratory Work; (4) Forthcoming Plans—Bermuda Expedition, and (5) Publications.

FLORIDA

On March 15th Senator Frederick C. Walcott invited Dr. and Mrs. Beebe and Mr. Tee-Van to spend several weeks in Florida waters to try out diving helmets and submarine photography. In four house-boats a thorough search was made along the Keys, from Miami to Knight's Key with numerous descents looking for satisfactory conditions. Everywhere the water was cloudy and rolled so that photography was impossible and observation at lowest ebb. The coral and sponges were fighting for bare existence in the stirred up mud and lime. The trip was of positive value in showing the impossibility of such research in the area covered, as compared with that at Key West and in the Bahamas and elsewhere on the other side of the Gulf Stream. Wherever descents were made barracudas, large and small, appeared and followed the diver closely about, interested but, as usual under such conditions, quite harmless.

HUDSON GORGE

In mid-summer the threatened sale of the ARCTURUS made it imperative to salvage the many thousand dollars worth of deep-sea machinery on board. This was made possible by the Merritt, Chapman Co., who removed the large winch, and especially through the kindness of Mr. Vivian Drake, President of the Salvage Process Corporation. Everything of value was saved and safely stored—sounding machine, small winch, three miles of wire, weights, dredges, nets, etc.

Continuing his generosity Mr. Drake allowed the small winch to be erected on the deck of his largest tug, the WHEELER, and two trips were made to the Hudson Gorge, where eighteen hauls were made, down to the depth of a mile. Fifty species of deep-sea fish were taken, some of them new to science, some found heretofore only off Japan. To the Zoological Society belongs the credit of first exploiting this almost unknown field of research, at the edge of the continental shelf, and of collecting remarkable deep-sea forms of life only one hundred miles from New York City, by means of a tugboat, operating between 6 P. M. Saturday night and 8 A. M. Monday morning. So important are these results, and in view of the future continuance, that this phase of the year's work has been set apart as the Eleventh Expedition of the Society at Station 114.

The only other interruption during the year was a brief trip to England on which the Director secured a very complete lot of early printed standard volumes on fish, dating from 1463 on. A lecture on the exploration work of the department was given before the Zoological Society of London.

RESEARCH AND LABORATORY WORK

The major occupation of the Director and his General Assistant was with the results of the Haitian Expedition. In September a volume was published "Beneath Tropic Seas," by the Director, and at the end of December the elaborate annotated "Fishes of Port-au-Prince Bay, Haiti," by William Beebe and John Tee-Van, with illustrations of every one of the two hundred and seventy species collected.

One additional Kartabo paper and three Arcturus monographs were brought to completion and published during the year.

In order to make possible the immediate publication of some of the accumulated results of the Department, Mr. Robert Gordon Mc-Kay undertook a one-man campaign, and due to his efforts alone, \$2,950 was secured for this fund.

The staff has been constantly busy, recording facts, photographing and making preparations. Miss Buffington has collated an immense

amount of new data concerning Arcturus myctophids, and Miss Hollister has developed the technique of clearing osteological staining to a remarkable degree of perfection.

BERMUDA EXPEDITION

While it is against the practice of the Director to talk about proposed work, yet the Twelfth or Bermuda Oceanographic Expedition of this department became an assured thing before the end of the year, and hence deserves brief mention.

The Bermuda Government has offered to Dr. Beebe, for purposes of research work under the auspices of the Zoological Society, the five-acre Island of Nonsuch, with buildings in perfect repair for laboratories; the sea-going tug GLADISFEN with captain and crew, motor boats, etc. The island will be given without charge, the boats for the bare cost of operation.

When this was announced at the Annual Meeting of the Board of Managers, the underwriting of the main cost of the expedition was guaranteed by Mr. Mortimer Schiff and Mr. Harrison Williams. The chief object will be a thorough study over a period of many months, by continual dredging and trawling, of the life of the sea in a limited area, from a depth of two miles to the surface, both in the open ocean and along the steep slopes of the submerged mountain peak of Bermuda.

PUBLICATIONS

Two additional translations into foreign languages were made during the year of department volumes:

Das Arcturus-Arbenteuer (Leipzig) Med Kamera Och Skrivblock Pa Havsbottnen (Stockholm)

During the year the list of publications of the Department of Tropical Research was increased to a total of 301.

PUBLISHED CONTRIBUTIONS IN 1928

282—Body-forms of Fishes W. K. Gregory Palaeobiologica, I. 1928

- 283—Annotated List of Synentognathi Nichols and Breder Zoologica, VIII. No. 7
- 284—About Flying Fishes
 Nichols and Breder
 Natural History, XXVIII. No. 1
- 285—The Versatile Gurnard
 William Beebe
 Natural History, XXVIII. No. 1
- 286—A Submarine Motion Picture Camera John Tee-Van Bull Zool. Soc. March-April
- 287—The Romance of the Bachac (Illustrations)
 Bull. Zool. Soc. March-April
- 288—Hummingbirds
 William Beebe
 Delineator, April.
- 289—Beyond Soundings
 R. Lloyd Praeger
 Cornhill Magazine, June
- 290—Fiddlers by the Sea
 William Beebe
 Atlantic Monthly, July
- 291—When Night Comes to Water William Beebe Nature Magazine, July
- 292—In Alice's Wonderland Beneath the Waves Illustrated London News, June 16
- 293—No-Man's-Land Five Fathoms Down William Beebe Nature Magazine, August
- 294—An Albatross Aftermath
 William Beebe
 Zool. Soc. Bulletin, November-December

- 295—Polychaetous Annelids from the Arcturus Expedition Aaron L. Treadwell Zoologica, Vol. VIII, No. 8
- 296—Sea Stars from the Arcturus Expedition W. K. Fisher Zoologica, Vol. VIII. No. 9
- 297—Schphomedusae from the Arcturus Expedition Henry B. Bigelow Zoologica, Vol. VIII. No. 10
- 298—A River Dolphin from Kartabo S. H. Williams Zoologica, Vol. VII. No. 4
- 299—Cinematography Under Water by Sunlight Illustrated London News, August 18
- 300—Beneath Tropic Seas William Beebe G. P. Putnam's Sons
- 301—The Fishes of Port-au-Prince Bay, Haiti William Beebe and John Tee-Van Zoologica, Vol. X. No. 1
- 302—A Volcanic Aftermath
 William Beebe
 Zoological Society Bulletin, July-August
- 303—The Isness and the Whyness
 Illustrated London News, December 8
- 304—Eine Neue Oreodora—Art aus Sudamerika S. H. Williams Deutsch. Ent. Zeitscr. 1928

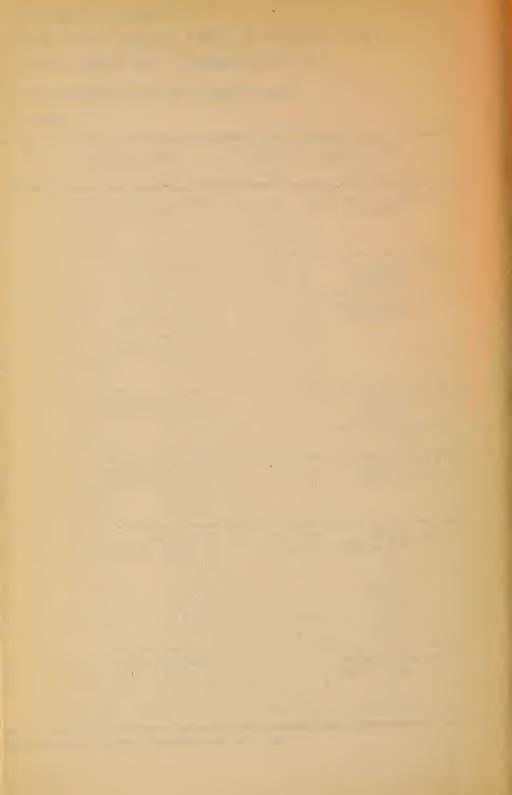


STATEMENT OF FUNDS PROVIDED BY THE VARIOUS CITY ADMINISTRATIONS FOR THE DEVELOPMENT AND MAINTENANCE OF THE ZOOLOGICAL PARK AND AQUARIUM

FROM THE ORGANIZATION OF THE SOCIETY TO THE PRESENT 1896 to 1929

MAYOR	COMPTROLLER	Year	MAINT	ENANCE	CORPORATE STOCK ISSUES		
MATOR	COM INCLLER		Park	Aquarium	Park	Aquarium	
Robert A. Van Wyck 1898-1901	Bird S. Coler 1898–1901	1899 1900 1901 1902	\$30,000.00 40,000.00 65,000.00 85,000.00	\$ 5,959.97	\$125,000.00 300,000.00 250,000.00		
Seth Low 1902–1903	E. M. Grout 1902–1903	1903 1904	104,965.00 104,965.00	46,453.68 46,439.72	250,000.00 275,000.00	\$30,000.00 40,000.00	
G. B. McClellan 1904–1909	E. M. Grout 1904–1906 Herman A. Metz 1907–1909	1905 1906 1907 1908 1909	134,965.00 144,965.00 141,558.75 154,627.00 162,325.00 167,632.00	44,968.50 44,987.71 44,183.87 44,157.27 45,971.44 45,974.86	275,000.00 250,000.00 100,000.00 65,000.00 10,000.00 89,500.00		
W. J. Gaynor 1910–1913 Ardolph L. Kline 1913	W. A. Prendergast 1910–1913	1911 1912 1913 1914	174,632.00 182,365.00 191,925.00 200,000.00	47,560.21 46,597.08 47,335.62 46,995.53	155,000.00	29,100.00	
J. P. Mitchel 1914–1917	W. A. Prendergast 1914–1917	1915 1916 1917 1918	200,000.00 197,074.35 199,560.00 207,586.00	46,991.66 46,996.43 46,903.61 48,630.71	21,425.00		
J. F. Hylan 1918 to 1926	C. L. Craig 1918 to 1926	1919 1920 1921 1922 1923 1924 1925 1926	190,000.00 250,098.27 276,951.01 264,618.05 264,515.00 264,514.49 264,514.49 274 280.00	45,000.00 53,971.48 65,203.12 63,341.26 59,226.00 58,309.00 58,334.00 62,348.00	5,000.00 15,000.00 52,000.00	25,000.00 86,000.00 7,970.00 33,000.00 1,500.00	
James J. Walker 1927 to 1930	Charles W. Berry 1927 to 1930	1927 1928 1929	277,280.00 319,380.50 323,359.00	65,228.00 88,111.00 67,732.00			
	Totals		\$5,858,655.91	\$1,433.911.73	\$2,237,925.00	\$252,570.00	

Note: The appropriations for each year are granted by the Board of Estimate the previous year.



SUMMARY OF EXPENDITURES, 1896 to 1928, NEW YORK ZOOLOGICAL SOCIETY AND THE CITY OF NEW YORK

ON ACCOUNT OF THE DEVELOPMENT AND MAINTENANCE OF THE ZOOLOGICAL PARK AND THE AQUARIUM, INCLUDING THE PURCHASE OF COLLECTIONS AND ALSO FOR THE SCIENTIFIC AND GENERAL PURPOSES OF THE SOCIETY.

	EXPENDED B	Y THE CITY C	F NEW YORK	FROM GATE	RECEIPTS			EX	PENDED BY	THE NEW YO	ORK ZOOLOGI	CAL SOCIETY	<i>(</i>		
Year	Zoological Park Maintenance	Aquarium Maintenance	Bond Issues a/c—Park and Aquarium	Construction and Repairs	Purchase of Animals	Zoological Park Development	Aquarium Improvements	Zoological Park Maintenance	Aquarium Maintenance	Purchase of Animals	Aquarium Specimens	Heads and Horns Collection	Pension Fund Contribution	Library and Paintings	Scientific and General Purposes
1896						\$ 4,213.63									
1897						6,424.61									\$ 2,903.74
1898	A 20 000 00					23,597:80		\$ 1,292.16							4,339.20
1899	\$ 30,000.00		6125 000 00		¢ 2 470 00	145,495.80		7,038.61		\$ 8,540.72				\$ 102.76	3,476.02
1900	40,000.00		\$125,000.00 300,000.00		\$ 2,470.88 2,998.80	34,626.24 18,348.61		6,189.33		3,784.32				88 13	5,601.78
1901 1902	65,000.00 85,000.00	\$ 5,959.97	250,000.00		4,256.50	5,908.69		3,714.37 2,757.57		11,652.24 20,983.07	,			462.20	7,597.16
1902	104,965.00	46,453.68	280,000.00		5,912.95	1,038.20		1 1		20,361.62				224.73	11,068.69
1904	104,965.00	46,439.72	315,000.00		5,421.90	1,013.87		1.894.37		14,299.61				456.03 88 7 .16	13,608.10 15,072.84
1905	134,965.00	44,968.50	275,000.00		6,849.00	144.00		1,071.57		20,643.40				418.10	18,773.90
1906	144,965.00	44,987.71	250,000.00		8,132.35	778.48	1			14,907.36	1			319.16	17,961.67
1907	141,558.75	44,183.87	100,000.00		8,248.65	370.72				10,606.03		\$ 892.71		644.05	15,999.68
1908	154,627.00	44,157.27	65,000.00		9,446.40	232.27				4,231.61		735.77		1,313.87	14,693.92
1909	162,325.00	45,971.44	10,000.00		9,992.75	2,860.92				9,734 43		7,340.82		609.56	17,168.95
1910	167,632.00	45,974.86	89,500 00		9,909.90	5,918.35				4,339.25	\$ 973.90	2,036.39		1,021.87	20,627.77
1911	174,632.00	47,560.21	155,000.00		11,611.15	1,155.00				6,659.89	1,191.80	1,615.38		1,221.26	23,409.39
1912	182,365.00	46,597.08			11,838.40	40.00				22,750.18	1,350 03	556.94		1,031.55	32,109.01
1913	191,925.00	47,335.62	29,100.00		12,404.25	218.45				10,665.57	1,850 25	486.00		732.97	32,543.88
1914	200,000.00	46,995.53	21 425 00	\$ 9,237.81	3,831.15	2,175.13				22,590.44	1,792.99	338.73	\$3,333.33	3,541.15	28,246.42
1915	200,000.00	46,991.66	21,425.00	9,175.86		887.88				13,629.41	1,466.64	1,024.91	8,000.00	4,181.24	31,398.08
1916	197,074.35	46,996.43		9,599.81	7,118.90	425.30		11 527 70		13,511.12	2,193.57	1,031.47 18.12	8,000.00	1,555.12	38,339.99
1917 1918	199,560.00 207,586.00	46,903.61 48,630.71		3,488.31 2,642.70	1	1,450.05 48.12		11,537.79	\$ 93.61	10,175.70 8,425.92	1,637.15 960.19	18.61	8,000.00 8,000.00	2,869.20 3,559.85	44,262.48 34,125.49
1919	190,000.00	45,000.00	5,000 00	4,917.84			\$ 3,450.00	19,924.00	407 07	13,345.59	1,028.05	88.27	8,000.00	1,442.07	45 599.71
1920	250,098.27	53,971.48	15,000.00	17,438.28		5.007.00	4,095.03	5,141.92		32,761.08	1,654.02	263.86	8,000.00	2,517.64	51,018.20
1921	276,951.01	65,203.12	86,000.00	25,463.77		88,734.92	53,635.02	6,068.17	976.47	27,442.59	2,165.05	2,661.67	8,000 00	4,698.24	55,684.15
1922	264,618.05	63,341.26	25,000.00	17,060.00		50,888.65	16,153.03	10,074,88	3,326.28	43,047,41	3,057,91	7,191.93	8,000.00	1,765.78	58,797.69
1923	262,724.50	57,166.63		18,388.20		5,000.00		19,019.09	3,319,44	24,456.20	1,432.89	1,550.69	8,000.00	3,391.96	58,404.21
1924	262,471.01	57,319.20	7,970,00	16,806.00			32,272.21	28,956,34	8,097,14	11,560.62	2,013,88	942.34	8,000.00	1,938.77	76,559,41
1925	262,808.69	58,324 89	85,000.00	19,974.05				38,793.01	4,380.45	20,843.01	2,609.55	667.78	8,000.00	1,174.24	242,753 89
1926	273,815.12	62,266.20	1,500.00	20,102.90				45,467.10	7,261.21	23,460.04	2,847.35	306.32	8,000.00	562.40	87,915.27
1927	276,855.19	65,216.89		18,960.48			1,395.00	61,968.22	11,656.97	27.545.92	2,861.55	135.00	8,000.00	2,477.37	82,807.54
1928	319,380.50	88,109.12		18,106.25		2,480,06		52,676.35	10,776.84	21,001.88	2,912.97	107.89	8,000.00	1,168.15	88,794.37
	ium on Bonds, everting to th		35,559.89												
Expended Expended	in connection in connection	with preparat with Galapag	ion and publica gos Expedition	ation of "A Me — gift of Ha	onograph of trison Willian	the Pheasants''	— gift of (Col. Anthony F	R. Kuser						194,100.00 98,670.00
			\$2,526,054.89							\$497,956.23	\$35,999.74	\$30,011,60	1 \$115 333 33	1 \$46 376 58	\$1,574,432.60

\$9,417,948.99

CLASSIFIED SUMMARY OF EXPENDITURES FOR THE YEAR 1928, NEW YORK ZOOLOGICAL SOCIETY

	PARK MAINTENANCE AQUARIUM MAINTENANCE		NEW YORK ZOOLOGICAL SOCIETY FUNDS						GRAND TOTAL				
	From Ci	ty Funds	From Ci	ty Funds	Special	Funds	Gen	neral Inc	ome Fund	Scientific &	Research		
	Salaries	Other Items	Salaries	Other Items	Salaries	Other Items	Salar	ries	Other Items	Salaries	Other Items	Salaries	Other Items
Zoological Park: Maintenance by City													
Administration	\$31,069.62											\$31,069.62	
Care of Buildings and Collections	96,151.01											96,151.01	
Care of Grounds	85,449 88				:							85,449.88	
Supplies		\$62,276.57											\$62,276.57
Equipment		6,513.82											6,513.82
Materials		14,181.61											14,181.61 15.537.99
Miscellaneous		15,537.99											1,990.00
Repairs to Root of Elephant House		1,990.00					,		• • • • • • • •				1,990.00
Gate Receipts			·										
Construction and Repairs					\$18,106.25							18.106.25	
•					φ10,100.27							10,100.27	
Contributions by Society													
Maintenance							\$38,7	20.36	\$13,955.99			38,720.36	13,955.99
Administration							13,13	29.28	10,366.63			13,129.28	10,366.63
Purchase of Animals						\$21,001.88	;						21,001.88
Scientific Purposes							8	25.00	8,893.04	\$11,745.36	\$22,043.25	12,570.36	30,936.29
							}				107.89		107.89
Insurance									5,313.35			1 070 30	5,313.35 6,212.85
Pension Contributions.								79.28	6,212.85			1,879.28 8,774.35	, , , , , , , , , , , , , , , , , , , ,
Miscellaneous Expenditures						672.79		74.35	2,024.21			2,618.50	2,697.00
						072.79	2,0	10.70	2,024.21			2,010.70	2,0 77 .00
Aquarium: Maintenance by City				\$37,128.66			J.,	ĺ					37,128.66
Plumbing, Heating and Interior Equipment			\$50,980.46	875.00								50,980,46	875.00
0,			\$70,960.46	0/7.00				• • • • •				70,900.40	0,7.00
Contributions by Society				-									
Maintenance							10.7	76.84				10,776.84	
Insurance							1.		1,375.07				1.375.07
Aguarium Specimens									2,912.97				2,912.97
Miscellaneous Expenditures		• • • • • • • • • •						20.00	114.32			120.00	114.32
Totals	\$212,670.51	\$100,499.99	\$50,980.46	\$38,003.66	\$18,106.25	\$21,674.67	\$76,8	43.61	\$51,168.43	\$11,745.36	\$22,151.14	\$370,346.19	\$233,497.89
Totals by Funds	\$313,	170.50	\$88	984.12	\$39.	780.92		\$128,0	012.04	\$33.8	896.50	\$603,84	44.08

FINANCIAL SUMMARY

The financial administration of the Zoological Society is under the Treasurer, the Executive Committee and the Finance Committee.

The Board of Estimate and Apportionment of the City of New York appropriated for the year 1928 a total of \$407,491.50 toward the maintenance of the Zoological Park and the Aquarium. Balances of funds from previous appropriations for alterations and repairs at the Park and Aquarium were available and expenditures made against them during the year all of which are accounted for in this report.

The Zoological Society Funds are as follows:

(1) Endowment Funds	
General Endowment	\$636,955.91
Anna M. Harkness Endowment	1,040,297.50
Rockefeller Endowment	999,233.53
Sage Endowment	692,669.57
George F. Baker Endowment	100,000.00
Jacob H. Schiff Endowment	50,000.00
Cadwalader Endowment	23,839.88
Florence Lydig Sturgis Endowment	12,316.81
Stokes Bird Endowment	6,265.00
Carnegie Pension Endowment	100,066.25
(2) Special Funds Animal Account, derived from special gifts and receipts from privileges	\$18,143.90 \$7,650.44
(3) Building Accounts	
Zoological Park Improvement and Repair Account	\$22,869.92
(4) Scientific Research and Publication Fund	
Publication Account	\$1,928.82
Special Publication Account	2,520.27
New Guinea Expedition Account	3,511.96
Library Account	38.24
Heads and Horns Collection Account	2,871.34

During the year 1928 from income, contributions and publication funds the Society expended a grand total of \$162,581.53. The expenditures in the Improvement and Repair Account were \$20,816.31. For the continuation of this work, of such great public benefit in the Park and Aquarium, and of such great scientific and literary value in its publication, the Society requires the immediate addition of \$2,000,000 to its general endowment and the constant attention of its members and friends to the needs of its Library, of its Heads and Horns Collection, of its Publications, and of its Animal Painting Gallery.

Communications and contributions to the Endowment Fund or Building Fund should be addressed either to the

Secretary of the New York Zoological Society, 56 Pine Street or to the

Treasurer of the New York Zoological Society, care of The Farmers' Loan and Trust Company, 22 William Street.

The form of gift or bequest is printed on page IX of this report.

Treasurer's Reports

For the Year Ending December 31, 1928

CORNELIUS R. AGNEW, Treasurer 22 William Street New York City

GROUP I

Maintenance Bund

ZOOLOGICAL PARK ACCOUNT

INCOME

Received from the City of New York on account of Park tenance Appropriation of \$319,380.50 for the year		\$276,253.46
Due from the City on Account of Park Maintenance Appro	priation	34,927.04
Shortage in City Maintenance Appropriation for 1928 (Paid	d by the	
New York Zoological Society)		52,676.35
	m !!	\$363,856.85
Portion of Park Maintenance Appropriation for Repairs to	Reptile	0.000.00
House Roof to be disbursed through Department of Pa	ırks	8,200.00
		\$372,056.85
		\$372,030.03
EXPENDITURES		
Personal Service:		
General administration \$3	1,069.62	
Maintenance of buildings and care of collections	6,151.01	
	5,449.88	
Salaries in excess of City Appropriation 3	8,720.36	\$251,390.87
C. A. C.		
Supplies:		
	0,142.32	
	20,393.42	
Fuel oil	60.00	
Office Supplies	693.05	
Stationery and printing	1,063.01 221.86	
Drugs and medicines	299.88	
Disinfectants	266.98	
Janitors' Supplies	166.53	
Motor vehicle supplies	608.85	
Ice	47.60	
Lubricating oils	35.17	
Nursery stock and seeds	336.13	
Nursery supplies	72.90	
Miscellaneous supplies	1,850.51	66,258.21

Equipment:		
Uniforms and Wearing Apparel	\$3,069.59	
Office Equipment	185.29	
Motor Vehicles and Equipment	843.94	
Awnings and Shades	116.80	
Janitors' Equipment	495.78	
Mats and Floor Coverings	44.85	
Painters' Equipment	283.25	
Rubber Hose	311.67	
Tools and Machinery	1,504.08	
Miscellaneous Equipment	801.82	7,657.07
		,,057.07
Materials:		
Motor Vehicle Materials	\$261.04	
Bolts, Nails and Hardware	409.31	
Electrical Materials	204.62	
Fencing and Netting	7,872.14	
Furnace Materials	1,123.88	
Glaziers' Materials	211.35	
Lumber	2,046.93	
Paints and Oils	3,484.22	
Plumbing Materials	1,429.53	
Sand, Cement and Brick	2,029.31	
Steel and Iron	2,644.72	
Miscellaneous Materials	2,875.06	24,592.11
Contract or Open Order Service:		
Apparatus and Machinery Repairs	\$102.08	
Harness and Vehicle Repairs	8.25	
Painting Labels	235.00	
Plumbing Repairs	2,221.10	
Sanitary Service	130.00	
Miscellaneous Repairs	5,402.80	
Motor Vehicle Repairs	88.21	
Electric Service	3,702.92	
Gas Service	64.65	
Telephone Service	1,594.24	
Expressage and Deliveries	169.17	13,718.42
Contingencies:		
Medical Attendance, Employees	\$11.00	
Medical Attendance, Animals	24.00	
Miscellaneous Expenses	205.17	240.17
	203.17	240.17
BEET		\$363,856.85
Portion of Park Maintenance Appropriation for Re- pairs to Reptile House Roof disbursed through		
Department of Parks		8,200.00
Department of Larks		0,200.00
		\$372,056.85

GROUP I

Maintenance Fund

AQUARIUM ACCOUNT

INCOME

Received from the City of New York on account Aquarium Main-	
tenance Appropriation of \$88,111.00 for the year	\$58,034.94
Due from the City on account of Aquarium Maintenance Appro-	
priation	30,074.18
Unexpended balance reverting to the City	1.88
Shortage in City Maintenance Appropriation for 1928 (Paid by	
the New York Zoological Society)	10,776.84
the frest Lora Boological boolety)	
	\$98,887.84
EXPENDITURES	4,0,00,101
Salaries and Wages	\$50,980.46
Salaries in excess of City Appropriation	10,776.84
Forage and Veterinary Supplies	4,077.84
Fuel Supplies	3,749.29
Office Supplies	160.98
Laundry, Cleaning and Disinfecting Supplies	223.94
Refrigerating Supplies	194.11
General Plant Supplies	649.39
Wearing Apparel	297.91
Office Equipment	424.95
General Plant Equipment	3,600.00
General Plant Materials	797.24
Repairs and Replacements	2,182.35
Telephone Service	276.01
Expressage and Cartage	327.63
Contingencies	167.62
Repairs and Replacements (1199-1-A)	19,999.40
Total Fananditures	\$00,000.00
Total Expenditures	\$98,885.96
Unexpended balance reverting to the City	1.88
	\$98,887.84
M C Enveronmentern Chief Clark	470,007.04

M. C. FENSTEMAKER, Chief Clerk.

GROUP II

Endowment Fund

GENERAL ENDOWMENT ACCOUNT

GENERAL ENDOWMENT ACCC	ONI	
Funds as of December 31, 1927:		
Cash in Bank	\$4,210.26 611,317.33	\$615,527.59
RECEIPTS		
Estate of Charles E. Rhinelander	\$11,190.92	
Edwin Thorne S. A. Goldschmidt	5,000.00 800.00	
Through Ladies Auxiliary	1,850.00	
Life Memberships	2,400.00 187.40	21,428.32
		\$636,955.91
Funds as of December 31, 1928: Investments at cost (for details see list of		
securities)	\$616,459.48	
Uninvested balance	20,496.43	636,955.91
		\$636,955.91
ROCKEFELLER ENDOWMENT AC	COUNT	
Funds as of December 31, 1927:		
Cash in Bank	\$435.87 999,797.66	\$1,000,233.53
		51,000,233.53
Loss on called Bonds		\$1,000.00
Funds as of December 31, 1928:		
Investments at Cost (for details see list of securities)	\$998,797.66	
Uninvested balance	435.87	999,233.53
		\$1,000,233.53
SAGE ENDOWMENT ACCOU	NT	
Funds as of December 31, 1927:		
Cash in Bank	\$5,290.77	\$440.00F.00
Investments at Cost	635,595.05	\$640,885.82
Estate of Margaret Olivia Sage		51,783.75
Estate of Margaret Offivia Sage		
Funds as of December 31, 1928:		\$692,669.57
Investments at cost (for details see list of		
securities)	\$684,645.05 8,024.52	\$692,669.57
		\$692,669.57
		,,

GROUP II

Endowment Fund

ANNA M. HARKNESS ENDOWMENT ACCOUNT

Estate of Anna M. Harkness Edward S. Harkness Profit on Sale of Stock Bequeathed	\$970,431.87 29,568.13 40,297.50	\$1,040,297.50
Funds as of December 31, 1928: Investments at Cost (for details see list of securities) Uninvested balance	\$887,988.75 152,308.75	\$1,040,297.50
GEORGE F. BAKER ENDOWMENT A	CCOUNT	
Funds as of December 31, 1927: Cash in Bank	\$87.75 99,912.25	\$100,000.00
Funds as of December 31, 1928: Investments at cost (for details see list of securities) Uninvested balance	\$99,912.25 87.75	\$100,000.00
JACOB H. SCHIFF ENDOWMENT A	CCOUNT	
Funds as of December 31, 1927: Cash in Bank	\$525.00 49,475.00	\$50,000.00
Funds as of December 31, 1928: Investments at cost (for details see list of securities)	\$49,475.00 525.00	\$50,000.00

CP	OT	TD	TI

Special Endowment Fund

CADWALADER ANIMAL ENDOWMENT ACCOUNT

CADWALADER ANIMAL ENDOWMENT	ACCOUNT	`
Funds as of December 31, 1927:		
Cash in Bank	\$2,839.88	
Investments at cost	20,000.00	\$22,839.88
RECEIPTS		
Interest on Investments		1,000.00
fine form :		
Funds as of December 31, 1928:		\$23,839.88
Investments at cost (for details see list of		
securities)	\$20,000.00	
Unexpended balance	3,839.88	\$23,839.88
		\$23,839.88
		φ23,037.00
FLORENCE LYDIG STURGIS ACC	COUNT	
Funds as of December 31, 1927:		
Cash in Bank	\$1,779.31	
Investments at cost	9,987.50	\$11,766.81
RECEIPTS		
Interest on investments		550.00
		\$12,316.81
Funds as of December 31, 1928:		
Investments at cost (for details see list of securities)	\$9,987.50	
Unexpended balance	2,329.31	\$12,316.81
		C10.01.01
		\$12,316.81
STOKES BIRD ENDOWMENT ACC	OUNT	
Funds as of December 31, 1927:		
Cash in bank	\$1,008.54	
Investments at cost	5,056.46	\$6,065.00
RECEIPTS		
Interest in investments		200.00
Funds as of December 21, 1028.		\$6,265.00
Funds as of December 31, 1928: Investments at cost (for details see list of		
securities)	\$5,056.46	
Unexpended balance	1,208.54	\$6,265.00
		\$6,265.00
		φυ,400.00

\$39,145.78

GROUP III

Special Endowment Fund

CARNEGIE PENSION ENDOWMENT ACCOUNT

CARNEGIE PENSION ENDOWMENT	ACCOUNT	
Funds as of December 31, 1927: Investments at cost		\$100,066.25
Funds as of December 31, 1928: Investments at cost (for details see list of securities)		\$100,066.25
		
GROUP IV Special Fund		
ANIMAL ACCOUNT		
Unexpended balance as of December 31, 1927:		
Cash in bank	\$23,996.91 100.00	\$24,096.91
Receipts from park:		
Privilege Department (1928 receipts)	\$12,000.00	
Sale of animals	2,970.00	
Checking	32.55 46.32	15,048.87
		\$39,145.78
EXPENDITURES		
Purchase of animals:		
Mammals Birds	\$12,750.25 4,376.51	
Reptiles	2,329.35	\$19,456.11
Express and other charges	\$1,028.74	
Traveling and other expenses	517.03	1,545.77
Unexpended balance as of December 31, 1928:		
Cash on hand	\$100.00	
Cash in bank	18,043.90	18,143.90

GROUP IV

Special Fund

ART GALLERY ACCOUNT

8,073.23 250.00 8,323.23 672.79 7,650.44 8,323.23 1,168.33
8,323.23 672.79 7,650.44 8,323.23
8,323.23 672.79 7,650.44 8,323.23
672.79 7,650.44 8,323.23
7,650.44
7,650.44
7,650.44
8,323.23
,
1,168.33
1,168.33
1,108.33
2,517.90
3,686.23
0,816.31
2,869.92

	UP	

General Income Fund

Unexpended balance as of December 31, 1927		\$3,231.12
RECEIPTS		
Income from General Endowment	\$29,848.17	
Income from Harkness Endowment	25,513.38	
Income from Rockefeller Endowment	50,961.44	
Income from Sage Endowment	38,111.13	
Income from Baker Endowment	5,000.00	
Income from Schiff Endowment	2,412.50	
Interest on bank balances	2,236.84	154,083.46
Annual Dues	\$20,690.00	
Sustaining Membership Dues	120.00	20,810.00
American Museum of Natural History	\$400.00	
Mrs. J. A. Swan	100.00	
Mrs. Emily Buch	25.00	525.00
		\$178,649.58
EXPENDITURES		
General office expenses	\$7,491.38	
Stationery, printing and office supplies	2,254.53	
Salary of Chairman	7,000.00	
Salary of Secretary	3,500.00	\$20,245.91
Treasurer's office expenses	\$2,250.00	
Audit of accounts	1,000.00	3,250.00
Annual report	\$4,995.43	
Annual meeting expenses	975.00	
Membership committee expenses	1,000.00	
Reception expenses	1,121.70	8,092.13
Zoological Park Maintenance Salaries in excess of		
City Appropriation (transfer)	\$38,720.36	
Zoological Park Maintenance Supply Deficit (transfer)	13,955.99	
Zoological Park Insurance	5,313.55	
Special Researh Work	1,000.00	58,989.90
Aquarium Maintenance Salaries in excess of City		
Appropriation (transfer)	\$10,776.84	
Aquarium Specimens	2,912.97	
Aquarium expenses	234.32	
Aquarium insurance	1,375.07	15,299.20
Pension Fund Income Account	\$3,665.00	
Aid to employees	5,109.35	8,774.35

GROUP V	General Income Fund		
Improvement and Repair A Publication account (transf Tropical Research account Galapagos Tortoise account New Guinea Expedition A Library account (transfer)	fer)	\$22,500.00 15,000.00 1,336.64 3,178.22 12,000.00 500.00 2,500.00	57.014.94
Heads and Horns Collection		2,300.00	57,014.86
Miscellaneous expenses	•••••		2,162.65
Unexpended balance as of	December 31, 1928		\$173,829.00 4,820.58
			\$178,649.58
GROUP VI Stir	ntific and Research Fun	d	
PU	JBLICATION ACCOUNT		
Unexpended balance as of	· ·		\$188.10
General Income Fund (tran Sale of "Our Vanishing W Sale of "Tropical Wild Lif	Vild Life"	\$15,000.00 31.50 57.11	15,088.61
	EXPENDITURES		\$15,276.71
Bulletin Zoologica Zoopathologica Photographs and slides Express and other charges		\$9,488.60 923.69 310.10 2,477.09 148.41	\$13,347.89
Unexpended balance as of	December 31, 1928		1,928.82
onemperate barance as of	2000mbc1 31, 1720		
SPECIA	AL PUBLICATION ACCOU	UNT	\$15,276.71
John E. Berwind Edward Harkness Ogden Mills Mortimer L. Schiff Harrison Williams Clarence Dillon Marshall Field Dr. Lewis R. Morris S. H. Williams		\$500.00 500.00 500.00 500.00 500.00 200.00 100.00 50.00	\$2,950.00
			\$2,950.00
Tropical Research publicat Unexpended balance as of	EXPENDITURES tions		\$42 9.73 2,520.27
			\$2,950.00

\$12,000.00

GROUP VI

Scientific and Research Fund

TROPICAL RESEARCH ACCOUNT

TROPICAL RESEARCH ACCOU.	N I	
Unexpended balance as of December 31, 1927		\$0.77
RECEIPTS		
Marshall Field	\$2,000.00	
George F. Baker	1,000.00 1,000.00	
John E. Berwind	1,000.00	
George D. Pratt	1,000.00	
Mortimer L. Schiff	1,000.00	
Harrison Williams	1,000.00	
General Income account (transfer)	1,336.64	9,336.64
		\$9,337.41
EXPENDITURES		
Salaries	\$7,986.80	
Traveling and other expenses	64.87	
Laboratory supplies	738.09	
Laboratory expenses	187.15 60.50	
Stationery and office supplies	70.60	
Miscellaneous expenses	229.40	\$9,337.41
		\$9,337.41
		ψ>,557.11
GALAPAGOS TORTOISE ACCOU	JNT	.
Unexpended balance as of December 31, 1927		\$2,000.00
RECEIPTS		
Robert S. Brewster	\$1,000.00	
Bayard Dominick	1,000.00	
Anthony R. Kuser	1,000.00 1,000.00	
Irving K. Taylor Henry Whiton	1,000.00	
General Income account (transfer)	3,178.22	8,178.22
Constant ancount (countries)		
EXPENDITURES		\$10,178.22
Coal and Water	\$3,354.21	
Traveling and other expenses	373.15	
Photographing	756.27	
Miscellaneous expenses	5,694.59	\$10,178.22
		\$10,178.22
NEW GUINEA EXPEDITION ACCO	HINT	
RECEIPTS	ONI	
General Income Fund (transfer)		\$12,000.00
		\$12,000.00
EXPENDITURES		
New Guinea Expedition		\$8,488.04
Unexpended balance as of December 31, 1928		3,511.96

		VI

Scientific and Research Fund

LIBRARY ACCOUNT

Unexpended balance as of December 31, 1927		\$33.60
General Income Fund (transfer)	\$500.00	500.00
EXPENDITURES		\$533.60
Books, pamphlets, etc. Subscription to periodicals Miscellaneous expenses	\$321.61 144.50 29.25	\$495.36
Unexpended balance as of December 31, 1928		38.24
		\$533.60
HEADS AND HORNS COLLECTION A	CCOUNT	
Unexpended balance as of December 31, 1927		\$479.23

Unexpended balance as of December 31, 1927	\$479.23
General Income Fund (transfer)	2,500.00
PADEMINISTER	\$2,979.23
Miscellaneous expenses	\$107.89 2,871.34
	\$2,979.23

January 1, 1929.

H. R. MITCHELL, Chief Clerk CORNELIUS R. AGNEW, Treasurer.

Department of Parks, Broux--City of New York

NEW YORK ZOOLOGICAL PARK

Code N. D. P. 332 S-Construction of	Walks and Guard Rails and Restoration
and Replanting of West	Bank of Bronx River.

and the state of t	
Approved by the Board of Estimate, July 18, 1919 June 14, 1928 Rescinded by Board of Estimate and	\$5,000.00
Apportionment	55.29
	\$4,944.71
Expenditures during 1924 and 1925	
Personal Service \$1,600.00 Materials 3,326.51	4,926.51
Unencumbered balance December 31, 1928 December 31, 1928 Automaticaly rescinded	\$18.20 \$18.20

Code R. D. P. 115 B.—Repairs and Replacements to roof and dome of Elephant House, in New York Zoological Park. All obligations contracted for hereunder to be incurred on or before December 31, 1925.

Adopted by the Board of Aldermen, June 23, 1925, and approved by the Board of Estimate, July 31, 1925. Extended to June 30, 1927, Board of Aldermen March 8, 1927, Board of Estimate and Apportionment May 5, 1927. Cal. No. 34...... Rescinded November 28, 1928 by Board of Estimate and Apportionment

\$22,000.00

No Balance

7,016.00 \$14,984.00

EXPENDITURES DURING 1926, 1927 AND 1928

Chrystie Cornice & Skylight Work, Inc..... Brooklyn Cornice & Skylight Works \$12,994.00 1,990.00

\$14,984.00

December 31, 1928..... No Balance JOHN H. BERGEN, Chief Clerk, Department of Parks, Borough of the Bronx.

Department of Parks, Manhattan--City of New York

AOUARIUM-ALTERATIONS

Code C. D. P. 4 A.—Construction of an additional story to the Aquarium.

Approved by the Board of Estimate and Apportionment, December 28, 1921

\$75,000.00

EXPENDITURES

Contract, Thos. A. Reilly Co., for the construction of additional story to Aquarium \$73,773.30 Open Market Order for Blue Prints, Electro Sun Co.

7.00

73,780.30

\$1,219.70

Code	C.	D.	P.	4	B.—Plumbing,	heating	and	interior	equipment	for	additional
					ste	ory to A	quar	ium.			

story to riquarium.					
Approved by the Board of Estimate and Apportionment, Dec. 28, 1921		\$11,000.00			
EXPENDITURES					
	\$720.00				
Contract, John Smith, for plumbing					
Contract, S. L. Snyder Co., for plumbing	1,082.00				
Contract, Henry Bing, for heating	1,985.00				
equipment	850.00				
O. M. O. Thomas A. Reilly Co., stairs, partitions, etc.	875.00				
O. M. O. Jos. Barrie Co., electrical work	920.00				
O. M. O. Thomas A. Reilly Co., toilet room, 2nd floor	833.00				
	110.00				
O. M. O. S. L. Snyder Co., for plumbing work					
O. M. O. Jos. L. Burke Corp., marble work	899.00				
O. M. O. S. L. Snyder Co., for plumbing work	130.00				
O. M. O. Henry Bing, for heating work	25.00				
O. M. O. Wm. J. Olvany, Inc., for heating	357.00				
O. M. O. Remo Realty Co., plumbing and heating.	314.88				
O. M. O. Wm. Knopp Electric Co., electrical work	386.00				
O. M. O. Remo Realty Co., gutters, etc	200.00				
O. M. O. P. H. Keogan, electrical work	875.00	10,561.88			
Unexpended balance as of December 31, 1928		\$438.12			
Code N. D. P. 4 C.—Completion of reconstructi	on of Aquan	rium.			
Approved by Board of Estimate and Apportionment,					
January 29, 1925		\$33,000.00			
Approved by Board of Estimate and Apportionment,		φ33,000.00			
March 25, 1926		1,500.00			
		\$04.500.00			
Rescinded by Board of Estimate and Apportionment,		\$34,500.00			
June 14, 1928		1,155.54			
		\$33,344.46			
EXPENDITURES					
O. M. O. N. Y. Letter Co., printing specifications	\$61.05				
Contract Remo Realty Co., completion of reconstruction	31,166.50				
	31,100.30				
Contract, English Construction Co., construction of	2 100 00				
East Wall	2,100.00	\$22.244.4C			
O. M. O. John Price Jones, printing specifications	16.91	\$33,344.46			

January 1, 1929.

JAMES A. SHERRY, Chief Clerk, Department of Parks, Borough of Manhattan.

Securities Owned by New York Zoological Society December 31, 1928

Listed at Cost or Gift Value

Endowment Fund

GENERAL ENDOWMENT ACCOUNT

	Bonds as follows:	
\$50,000	American Tel. & Tel. Co., Collateral Trust 4%, 1929	\$45,000.00
30,000	Amer. Tel. & Tel. Co., 20-yr. Skg. Fd. Debenture	
	5½%, 1943	29,475.00
4,000	Baltimore & Ohio RR. Co., 1st Mtge. 4%, 1948	3,120.00
3,000	Central RR. Co. of New Jersey, Gen. Mtge, 5%, 1987	3,031.25
17,600	Chicago, Milwaukee, St. Paul & Pacific RR. Co. 5% Conv.	
	Adj. Mtge. Series A 2000	16,620.00
4,400	Chicago, Milwaukee, St. Paul & Pacific RR. Co. 50-yr. 5%	
	Mtge. Series A, 1975	4,155.00
20,000	Chicago & Northwestern Ry. Co., Gen. Mtge. 4%, 1987	19,750.00
5,000	Colorado & Southern Ry. Co. 1st Mtge. 4%, 1929	4,750.00
15,000	Detroit Edison Co., Rfdg. 5%, 1949	14,625.00
20,000	Ill. Central RR., Chic., St. L. & N. O. RR. Co., Jt. 1st	20.002.75
5 000	Rfdg. Series "A" 5%, 1963	20,083.75
5,000	Lackawanna Steel Co., 1st Cons. Conv. Series A, 5%,	4,891.25
9,000	1950	9,090.00
75,000	P. Lorillard Co., 5%, 1951	72,775.00
5,000	Mich. Cent. RR. Co., Mich. Air Line RR. 1st Mtge. 4%,	72,773.00
3,000	1940	4,950.00
20,000	Milwaukee, Sparta & No. West'n Ry. Co., 1st Mtge. 4%,	1,230.00
20,000	1947	18,900.00
5,000	Missouri & Ill. Bdg. & Belt RR. Co., 1st Mtge. 4%, 1951	5,000.00
1,000	Morris & Essex RR. Co., 1st Rfdg. Mtge. 31/2%, 2000	876.25
25,000	New England Tel. & Tel. Co., 1st Series A 5%, 1952	24,843.75
25,000	N. Y. & Westchester Ltg. Co., Gen. Mtge. 100-yr. 4%,	
	2004	19,750.00
25,000	Oregon Short Line RR. Co., 1st Cons. Mtge. 5%, 1946	25,990.00
16,000	Pennsylvania RR. Co. Secured 40-yr. 4%, 1964	16,120.00
10,000	St. Paul, Minn. & Man. Ry. Co., Cons. Mtge. 4%, 1933	9,800.00
80,000	Standard Oil Co. of N. J. 20-yr. Deb. 5%, 1946	80,603.13
47,000	Union Pac. RR. Co., 1st Mtge. RR. & L. G. 4%, 1947	44,058.00
7,000	United New Jersey RR. & Canal Co., Gen. Mtge. 4%, 1944	6,230.00
75,000	United States Steel Corp., 10/60 yr. Skg. Fund 5%, 1963	77,982.10
20,000	Vandalia RR. Co., Cons. Mtge. Series B, 4%, 1957	19,400.00
	Stocks as follows:	
shares		
50	American Superpower Corp. Preferred	4,975.00
100	New York, Lackawanna & Western Ry. Co. Capital	9,615.00
		\$616,459.48

HARKNESS ENDOWMENT ACCOUNT

	Bonds as follows:	
\$50,000	American Gas & Electric Co., Deb. 5%, 2028	\$50,250.00
50,000	Boston & Maine RR. 1st, 5%, 1967	49,757.50
50,000	Chicago, Milwaukee, St. Paul & Pacific RR. Co., Gtd.	ĺ
·	5%, 1975	47,881.25
50,000	Solvay American Investment Corp. Secured Notes 5%	49,750.00
250,000	Standard Oil Co. of N. J., 5%, 1946	255,000.00
	Stocks as follows:	
shares		
500	Columbia Gas & Electric Co., Preferred	54,875.00
500	Consolidated Gas Co. of N. Y., Preferred	51,975.00
500	New York, Chicago & St. Louis RR., Preferred	54,500.00
500	Prairie Pipe Line Co	104,000.00
	Call Loans	170,000.00
	Call Loans	
		\$887,988.75
	ROCKEFELLER ENDOWMENT ACCOUNT	
	NO OLIDI BEBEN BIODO (MEDICI TIOCO OLI I	
	Bonds as follows:	
\$50,000	Central Pacific Ry. Co., 1st Rfdg. Mtge. 4%, 1949	\$43,050.00
100,000	Chesapeake & Ohio Ry., Genl. Mtge. 41/2%, 1992	96,906.25
50,000	Chic., Bur. & Q. RR. Co., 1st & Rfdg. Mtge. Series A, 5%,	
	1971	49,322.50
100,000	Chicago & Northwestern Ry. Co., 1st & Ridg. Mtge. 5%,	104 010 75
50,000	Laskanana Starl Co. Com. Int. Com. Mara. Social A	104,018.75
50,000	Lackawanna Steel Co., Conv. 1st Cons. Mtge. Series A, 5%, 1950	49,312.50
50,000	Lake Shore & Michigan Southern RR. Co., 4%, 1931	45,915.50
50,000	Liggett & Myers Tobacco Co., Gold 5%, 1951	48,243.75
25,000	P. Lorillard Co., Gold 5%, 1951	24,037.50
50,000	P. Lorillard Co., Gold 5%, 1951	4.,
,	1952	48,735.00
50,000	1952	
	4½%, 1961	47,225.00
40,000	New York Central RR. Co., Cons. Mtge. Series A, 4%,	
50,000	1998	32,015.00
50,000	New York Central RR. Co., Rfdg. & Imp. Series C, 5%, 2013	47,562.50
50,000	N. Y. Tel. Co., 1st & Gen. Mtge. Skg. Fd. 4½%, 1939	46,787.50
50,000	Union Pacific RR. Co., 1st RR. & Land Grant 4%, 1947	45,693.75
50,000	United States Steel Corp., 10/60 yr. Skg. Fd. 5%, 1963	51,218.28
18,000	Western Union Tel. Co., Fdg. & Real Est. 4½%, 1950	16,899.50
	Stocks as follows:	
shares	A	* * * * * * * * * * * * * * * * * * * *
505	American Tobacco Co., Preferred	56,230.63
565	Morris & Essex RR. Co.	45,623.75
	Call 'Loans	100,000.00
		\$998,797.66

SAGE ENDOWMENT ACCOUNT

\$50,000 Central Pacific Ry. Co., 1st Rfdg. 4%, 1949		Bonds as follows:	
75,000 Chi., Burl. & Quincy RR. C., 1st & Rfdg. Series A, 5%, 1971	\$50,000		\$43,983.75
1971	75,000		
Solution		1971	75,605.00
Rfdg. Series "A" 5%, 1963. 5,022.50 100,000 Indiana Steel Co., 1st Mtge. 5%, 1952. 100,166.08 21,000 Interborough Rapid Transit Co., 1st & Rfdg. 5%, 1966. 13,413.75 75,000 Liggett & Myers Tobacco Co., Gold 5%, 1951. 74,296.25 10,000 New Bruns. So. Ry. Co., 1st Mtge. 30-yr. Gold 3%, 1933 8,100.00 10,000 New York Central RR. Co., Cons. Mtge. Series A, 4%, 1998 8,034.00 50,000 N. Y. Central RR. Co., Rfdg. & Imp. Series C, 5%, 2013. 47,250.00 4,000 N. Y. State Rys. Co., 1st Cons. Mtge. Gold, Series A, 50-yr. 4½%, 1962 2,645.00 50,000 N. Y. Tel. Co. 1st & Gen. Mtge. Skg. Fund 4½%, 1939. 43,326.50 10,000 OreWash. RR. & Nav. Co., 1st & Rfdg. Mtge. Series A, 4%, 1961 6,500.00 15,000 Pennsylvania RR. Co. Secured 5%, 1964 15,018.75 5,000 Schenectady Ry. Co., 1st Mtge. 30-yr. Series A, Gold 5%, 1946 15,018.75 6,000 Schenectady Ry. Co., 1st Mtge. 30-yr. Series A, Gold 5%, 1946 3,690.00 Stocks as follows: shares 95 American Tobacco Co. Preferred 10,319.37 200 Atchison, Topeka & Santa Fe Ry. Co., Preferred 14,525.00 501 Chicago & Northwestern Ry. Co., Common 3,190.69 500 Consolidated Gas Co. of N. Y., Preferred 47,000.			3,015.00
100,000 Indiana Steel Co., 1st Mtge. 5%, 1952	5,000	Ill. Central RR., Chic., St. L. & N. O. RR. Co., Jt. 1st	5 022 50
21,000 Interborough Rapid Transit Co., 1st & Rfdg. 5%, 1966 13,413.75 75,000 Liggett & Myers Tobacco Co., Gold 5%, 1951	100.000		
75,000 Liggett & Myers Tobacco Co., Gold 5%, 1951	•		,
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50,000 N. Y. Central RR. Co., Rfdg. & Imp. Series C, 5%, 2013. 47,250.00 4,000 N. Y. State Rys. Co., 1st Cons. Mtge. Gold, Series A, 50-yr. 4½%, 1962 2,645.00 50,000 N. Y. Tel. Co. 1st & Gen. Mtge. Skg. Fund 4½%, 1939. 43,326.50 10,000 OreWash. RR. & Nav. Co., 1st & Rfdg. Mtge. Series A, 4%, 1961 6,500.00 15,000 Pennsylvania RR. Co. Secured 5%, 1964. 15,018.75 5,000 Rochester Ry. & Light Co., Cons. Mtge. 5%, 1954. 4,475.00 6,000 Schenectady Ry. Co., 1st Mtge. 30-yr. Series A, Gold 5%, 1946 3,690.00 Stocks as follows: shares 95 American Tobacco Co. Preferred 10,319.37 200 Atchison, Topeka & Santa Fe Ry. Co., Preferred 14,525.00 65 Bankers Trust Co. 29,250.00 51 Chicago & Northwestern Ry. Co., Common 3,190.69 500 Consolidated Gas Co. of N. Y., Preferred 47,000.00 224 Electric Bond & Share Securities Corp. 8,400.00 504 General Electric Co., Common 27,720.00 176 General Electric Co., Special 1,760.00 56 Illinois Central RR. Co.	10,000		8.034.00
4,000 N. Y. State Rys. Co., 1st Cons. Mtge. Gold, Series A, 50-yr. 4½%, 1962	50,000		,
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38 Western Union Telegraph Co			
Call Loans			
	38	Western Union Telegraph Co	3,447.00
\$684.645.05		Call Loans	30,000.00
Ψ001,015.05			\$684,645.05

GEORGE F. BAKER ENDOWMENT ACCOUNT

	GEORGE F. BAKER ENDOWMENT ACCOUNT	
	Bonds as follows:	
\$50,000 50,000	National Tube Co., 1st Mtge. 5%, 1952 Pennsylvania RR. Co., Gen. Mtge. Series B, 5%, 1968	\$49,899.75 50,012.50
		\$99,912.25
	JACOB H. SCHIFF ENDOWMENT ACCOUNT	
25,000	American Telephone & Telegraph Co., S/F 5%, 1960	
300	Bonds Morris & Essex RR. Co. Stock	\$25,250.00 24,225.00
	•	\$49,475.00
	Sussial Turbanant Wash	
	Special Endowment Fund	
	CADWALADER ANIMAL ENDOWMENT ACCOUNT	•
\$20,000	Illinois Central RR. & Chicago, St. Louis & New Orleans RR. Co. Jt., 1st Rfdg. Mtge. Series A, 5% Bonds, 1963.	\$20,000.00
	FLORENCE LYDIG STURGIS ACCOUNT	
\$10,000	American Tel. & Tel. Co., Skg. Fd. 5½%, 1943	\$9,987.50
\$10,000	American 1et. & 1et. Co., Skg. Fd. 37270, 1945	φ3,367.30
	STOKES BIRD ENDOWMENT ACCOUNT	
\$5,000	Illinois Central RR. Co., Rfdg. Mtge. 4% Bonds, 1955	\$5,056.46
	CARNEGIE PENSION ENDOWMENT ACCOUNT	
	Bonds as follows:	
\$25,000	Chicago & Northwestern Ry. C., Gen. Mtge. 4%, 1987	\$23,687.50
25,000 25,000	Illinois Central RR. Co., Řfdg. Mtge. 4% , 1955 Lehigh Coal & Nav. Co., Cons. Mtge. Skg. Fd. Series A,	23,062.50
23,000	4½%, 1954	24,875.00
1,000	4½%, 1954 Michigan Central RR. Co., Gold 3½%, 1952	817.50
5,000 25,000	Morris & Essex RR. Co., 1st Rfdg. Mtge. 3½%, 2000 Philadelphia & Baltimore Central RR. Co., 1st Mtge. 4%,	4,373.75
23,000	1951	23,250.00

\$100,066.25

PENSION FUND INCOME ACCO	OUNT
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Uninvested balance as of December 31, 1927:	ONI	
Deposited with The Farmers' Loan & Trust Co. Deposited with the Corn Exchange Bank	\$6,605.02 881.61	\$7,486.63
Investments at Cost		131,326.75
RECEIPTS		\$138,813.38
Interest on Bank Balances	\$113.55	
Interest on Investments	6,840.66 4,444.34	11,398.55
Contributed by the N. Y. Zoological Society:		
Income from Carnegie Endowment	\$4,335.00	
General Income Fund (transfer)	3,665.00	8,000.00
		\$158,211.93
EXPENDITURES	£115.00	
Physical Examinations Clerical Services and Printing	\$115.00 348.00	
Pension Payments	12,851.23	\$13,314.23
·		,,
Investments at Cost:		
\$2,000 N. Y. Cen. RR. (Lake Shore Col.), 1998, 3½% Bonds	\$1,300.00	
3,000 Union Pacific RR., first 1947, 4% Bonds	2,486.25	
5,000 Twenty-third St. Ry. Imp. & Ref. 1962, 5%	2,100.23	
Bonds	4,825.00	
6,000 Buffalo General Elec., first 1939, 5% Ref.	4,945.00	
Bonds	5,640.00	
5% Bonds	1,073.75	
5,600 Chic., Mil., St. Paul & Pac. Ry. Co., 2000,	-,	
5% Bonds	4,295.00	
5,000 Columbia Gas & Elec., 1952, 5% Gold Bonds	5,016.25	
7,000 Lackawanna Steel Co., first 1950, 5% Bonds	6,847.75	
12,000 C. B. & Q. RR., Ill. Divn., 1949, 3½% Bonds 12,000 Detroit Edison Co., 1949, 5% Ref. Bonds	9,462.00 11,914.00	
13,000 B. & O. RR. Co., first 1948, 4% Bonds	11,322.75	4
13,000 B. & O. (P.L.E.&W.Va. RR.), 1941, 4%	11,322.73	
Ref. Bonds	10,506.25	
5% Bonds	16,838.00	
19,000 Michigan Central RR., first 1952, 3½%	15 416 00	
Bonds	15,416.00	
Bonds	24,455.00	136,343.00
Uninvested balance, December 31, 1928:		
Deposited with The Farmers' Loan & Trust Co.	\$8,045.48	
Deposited with the Corn Exchange Bank	509.22	8,554.70
		\$158,211.93
		ψ130,411.93

H. R. MITCHELL,
Asst. to Treasurer in Charge of Pensions.
January 1, 1929.

Cornelius R. Agnew, Treasurer.

PEAT, MARWICK, MITCHELL & CO.
ACCOUNTANTS AND AUDITORS
40 Exchange Place
NEW YORK, N. Y.

Certificate of Auditors

We have audited the books and accounts of the New York Zoological Society and of the "Pension Fund Income Account" for the year ended December 31, 1928, and certify that the foregoing schedules are in accordance with the books, and that, in our opinion, they correctly record the transactions relating to the funds of the Society and the Pension Fund Income Account for the year 1928, and the condition of the funds as at December 31, 1928.

The subscriptions, donations and dues reported as received, and the income from investments have been properly accounted for, and the securities and cash on hand at December 31, 1928, as shown in the accounts of the funds presented herewith, have been checked and found in order. Satisfactory vouchers have been produced for the expenditures.

New York, N. Y., March 18, 1929. PEAT, MARWICK, MITCHELL & Co.

Report of the Auditing Committee

OF THE

NEW YORK ZOOLOGICAL SOCIETY

To the President and Board of Managers of the New York Zoological Society:

Dear Sirs:

We beg to report that we have examined the annual audit of the books and accounts of the New York Zoological Society for the year ended December 31, 1928, made by Messrs. Peat, Marwick, Mitchell & Co., Chartered Accountants, and herewith submit the same to you as a complete and satisfactory audit of said books and accounts, including the General Funds, the Carnegie Pension Fund and the Pension Fund Income Account, it appearing that all expenditures and receipts of the various accounts are fully set forth therein; that the cash on hand and at the various depositories has been verified and found correct, and that all securities in which the funds of the Society are invested have been examined and found as reported.

Expenditures made through the Park Department of the City of New York have not been verified by this audit as such moneys have not passed through the hands of the Society, but are in due course checked and verified by the Comptroller of this city.

Respectfully submitted,

WILLIAM W. NILES, Chairman. W. REDMOND CROSS. GEORGE C. CLARK, JR.

April ., 1929.

Subscriptions to the General Endowment Fund of the New York Zoological Society

(\$5,000 and over)

Mrs. Frederick F. Thompson	\$55,000.00
E. C. Converse	50,000.00
Edwin Gould	40,000.00
George F. Baker	25,000.00
T. Coleman du Pont	25,000.00
Maria DeWitt Jesup	25,000.00
Cleveland H. Dodge	25,000.00
Jacob H. Schiff	25,000.00
Samuel Thorne	25,000.00
Charles E. Rhinelander	21,669.25
Watson B. Dickerman	20,000.00
J. P. Morgan	20,000.00
Lispenard Stewart	12,500.00
Frank W. Kitching	10,329.16
Edward S. Harkness	10,000.00
James J. Hill	10,000.00
Henry Iden	10,000.00
Ogden Mills	10,000.00
Levi P. Morton	10,000.00
Percy R. Pyne	10,000.00
John D. Rockefeller, Jr.	10,000.00
Edward Russ	10,000.00
Phoebe Anna Thorne	10,000.00
C. F. Dieterich	6,000.00
Mortimer L. Schiff	6,000.00
Ladies' Auxiliary	5,680.00
Abram G. Nesbitt	5,500.00
John D. Archbold	5,000.00
Samuel P. Avery	5,000.00
Frederick G. Bourne	5,000.00
Robert S. Brewster	5,000.00
John L. Cadwalader	5,000.00
Andrew Carnegie	5,000.00
Hugh J. Chisholm	5,000.00
George C. Clark	5,000.00
George J. Gould	5,000.00
Archer M. Huntington	5,000.00
George W. Perkins	5,000.00
Nelson Robinson	5,000.00
F. K. Sturgis	5,000.00
Henry A. C. Taylor	5,000.00
Edwin Thorne	5,000.00
Emily Trevor	5,000.00

Contributions to Special Funds of the New York Zoological Society

(\$5,000 and over)

Harrison Williams	\$150,518.31
Andrew Carnegie	31,000.00
George F. Baker	24,500.00
Jacob H. Schiff	
	22,300.00
Mortimer L. Schiff	21,640.00
Samuel Thorne	18,950.00
George D. Pratt	18,000.00
Edward S. Harkness	17,000.00
Anthony R. Kuser	16,200.00
George J. Gould	15,300.00
Cleveland H. Dodge	15,125.00
John D. Rockefeller	15,000.00
Marshall Field	14,100.00
E. C. Converse	14,000.00
Robert S. Brewster	13,500.00
Percy R. Pyne	12,450.00
Lispenard Stewart	10,250.00
John D. Archbold	10,100.00
Vincent Astor	,
	10,000.00
Mrs. Andrew Carnegie	10,000.00
Clarence Dillon	10,000.00
Mrs. Frederick F. Thompson	10,000.00
William Rockefeller	9,000.00
Charles F. Dieterich	8,800.00
Levi P. Morton	8,500.00
Charles T. Barney	7,500.00
F. Augustus Schermerhorn	7,500.00
Cornelius Vanderbilt	7,500.00
C. Ledyard Blair	6,750.00
A. Barton Hepburn	6,500.00
Mrs. Finley J. Shepard	6,400.00
John Cadwalader	6,200.00
Oliver H. Payne	6,000.00
Henry A. C. Taylor	6,000.00
William K. Vanderbilt	6,000.00
William C. Whitney	6,000.00
Nelson Robinson	5,900.00
John S. Barnes	5,750.00
Frederick G. Bourne	5,500.00
J. P. Morgan	5,500.00
Emerson McMillan	5,280.00
Oswald Ottendorfer	5,250.00
William D. Sloane	5,250.00
Edward J. Berwind	5,000.00
William E. Dodge	5,000.00
Robert Goelet	5,000.00
C. P. Huntington	5,000.00
Mrs. John B. Trevor	5,000.00
Mrs. Antoinette E. Wood	5,000.00

LIST OF ACCESSIONS BY THE

New Bork Zoological Society

AT THE ZOOLOGICAL PARK

1928

AHRENS, GEORGE L., New Rochelle, N. Y .:

Alligators (2 specimens).

ASHMEAD, G., New York City:

Yellow-Faced Conure.

AXELBIRD, ELKIN, New York City:

Opossum.

BAKER, MADAME RAY, Philadelphia, Pa .:

Gray Fox.

BANANA SALES CORPORATION, New York City: 8 Boa Constrictors, 1 South American Rat Snake, 1 Red-Eyed Tree Frog, 1 Tree Frog, 2 Geckos, 1 Iguana, 1 Bush Snake, 1 Coral King Snake. Total, 16 specimens.

BERRY, EUGENE, Lubbock, Texas:

Horned Toad.

Bisson, F. J., New York City:

Ocelot.

BLACKBURN, MISS RUBY, New York City:

Marmoset.

BLADES, WILLIAM, JR., Larchmont, N. Y.: Madagascar Lovebird.

Boles, George, Sound Beach, Conn.:

White-Faced Sapajou.

BOY SCOUT TROOP No. 12, Woodhaven, L. I., N. Y.:

Alligator.

Bunn, Mrs. C. W., New York City:

Mexican Wild Cat.

BURTON, MRS. E. F., New York City:

European Bullfinch.

CALLAHAN, MISS MARY D., Scarsdale, N. Y.:

South American Red Squirrel.

CARROLL, WILLIAM M., Hackensack, N. J.: Red-and-Blue Macaw.

CARTER, R. S., Hewlitt, L. I., N. Y .:

Raccoon.

CATTANER, PETER, Mt. Vernon, N. Y .:

Red Fox. CELLOT, EUGENE A., New York City: Diamond-Back Terrapin.

CHAPELLE, GEORGES, New York City:

Karung.

CLARK, DR. HERBERT C., New York City:

2 Central American Rattlesnakes, 1 Central American Boa.

COE, M. S., New York City: European Bullfinch.

COHEN, J., New York City:

Alligator.

COHEN, Mrs. M., Crestwood, N. Y.: Illiger Macaw.

Cook, Leo, New York City:

White-Nosed Coati Mundi.

CROCKER LABORATORY, Columbia University, New York City: 2,675 White Rats, 878 White Mice.

CROSS, W. REDMOND, Morristown, N. J.:

Snapping Turtle.

CROWLEY, GEORGE C., New York City:

Gila Monster.

DARROW, Mrs. DANIEL, New York City:

Weeper Sapajou.

DAY, WILLIAM F., Mt. Vernon, N. Y.:

Ring-Tailed Cat.

DELCHER, IRVING B., Philadelphia, Pa.:

Undulated Grass Parrakeets (2 specimens).

DEMPSEY, MRS. S. T., New York City: 2 Horned Lizards, 1 Milk Snake.

DICKERMAN, DON, New York City: Ocelot.

DICKEY, DR. H. S., New York City:

1 Hooded Sapajou, 1 Great Green Cacique.

DINSMORE, BERT, Brooklyn, N. Y.: Military Macaw.

DOMINICK, BAYARD and PETER, New York City:

Kinkajou.

Donnelly, H. J., Loomis, N. Y.: Horned Lizard.

Douglas, John E., Yonkers, N. Y.: Alligator.

ESTABROOK, AUSTIN L., deceased, through ESTABROOK, MISS MARGARET C., New York City:

European Blackbird.

FAGAN, CHARLES L., Rahway, N. J.: Green-Wing Glossy Starling.

FARRARA, MRS. J. J., New York City:

Marmoset.

FENNO, H. B., Boston, Mass.

2 Gopher Snakes, 2 King Snakes.

FINNEY, F. N., Sedalia, Mo.: Emory's Coluber.

FISHER, HAROLD W., Whitestone, L. I., N. Y.: Alligator.

FLEISCHMANN, W., New York City:

Canary-Gray Singing Finch Hybrids (2 specimens).

Folsom, H. & D. Arms Co., New York City: Woodchuck.

FOOTBALL SQUAD, THE, New York University, New York City: Coyote.

FORD, ÁLLAN P. and NARAMORE, W. W., Bridgeport, Conn.: Banded Rattlesnakes (3 specimens).

FORD, CLEMENT R., New York City:

Great Horned Owls (2 specimens).

FRANCOIS, MRS. GENE, New York City:

Vervet Monkey.

Fraser, John, Mt. Vernon, N. Y .: Alligators (2 specimens).

FRAZIER, REX DUNBAR, Houston, Texas:

1 Ground Rattlesnake, 1 Fox Snake, 5 Water Snakes. Total, 7 specimens.

GABRIEL, MRS. H., New York City: Alligator.

GARCIA-JOVE, MRS. BERTELLA, New York City: White-Throated Sapajou.

GEORGES, MRS. S. A., New York City:

Rhesus Monkey.

GIAMBALVO, ANTHONY, Brooklyn, N. Y.: Alligator.

GILLAM, ARTHUR L., Flushing, L. I., N. Y.:

1 Gopher Snake, 2 Water Moccasins, 1 Diamond-Back Rattlesnake, 2 King Snakes, 3 Coachwhip Snakes, 1 Water Snake, 1 Ribbon Snake, 2 Florida Garter Snakes, 1 Red-Headed Lizard, 1 Corn Snake, 7 Copperhead Snakes, 1 Milk Snake, 1 Hog-Nosed Snake, 5 Rattlesnakes, 1 Florida Rattlesnake, 4 Banded Rattlesnakes. Total, 34 specimens.

GLANZ, AMINADOV, Brooklyn, N. Y .: King Vultures (2 specimens).

GLANZ, N., Brooklyn, N. Y .:

Woodchuck.

GOLDHORN, DR. L. B., Mt. Vernon, N. Y .:

4 Copperhead Snakes, 2 Black Snakes, 1 Water Snake. Total, 7 specimens. GORLOW, MRS. MELBA, New York City:

Alligators (2 specimens).

GRAHAM, MISS MARION, Brooklyn, N. Y .:

Marmosets (4 specimens).

GREENHALL, ARTHUR, New York City:

20 Painted Turtles, 4 Spotted Turtles, 1 Wood Tortoise, 3 Bull Frogs, 2 Ribbon Snakes, 5 Garter Snakes, 1 Water Snake, 6 Wood Frogs, 2 Green Frogs, 25 Frogs, 16 Toads. Total, 85 specimens.

GRUNDSTROM, MR. and MRS. A., New York City:

Weeper Sapajou.

GRYB, ARTHUR, Mt. Vernon, N. Y.:

8 Painted Turtles, 4 Snapping Turtles, 1 Spotted Turtle, 1 Wood Tortoise. Total, 14 specimens.

HAAGNER, DR. A. K., Hamanskraal, South Africa:
1 South African Ground Hornbill, 1 Martial Eagle.

HANRAHAN, WALTER J., New York City: Horned Toad.

HARLOW, MISS GWENDOLYN, New York City:

Green Monkey:

HASTINGS, C. J., Brooklyn, N. Y.:

Sapajou

HAUSER, ARTHUR, New York City:

1 Soft-Shelled Turtle, 1 Snapping Turtle, 2 Painted Turtles, 2 Sliding Turtles. Total 6 specimens.

HEAHLE, FREDERICK G., Union City, N. J.:

1 King Snake, 1 Boa Constrictor.

Henning, Fred, Mt. Vernon, N. Y.: Ring-Tailed Cat.

Higginson, T. L. and J. J., New York City: Alligators (2 specimens).

HOAR, MR. and MRS. BERNARD, Clifton, N. J. Java Macaque.

HOFFMAN, MISS ANNE, New York City: Alligator.

HOFFMAN, HARRY L., New York City: Red Coati Mundi.

HOFFMAN, Mrs. HARRY LESLIE, New York City: Marmoset.

HOLMES, JONATHAN, Freehold, N. J.: Prairie Dog.

HUBER, JOSEF, JR., New York City: Alligator.

Hug, Miss Anna, Huntington, L. I., N. Y.: Skunk.

Hurley, Miss Catherine, New York City: Black Marmoset.

ITZKOFF & Sons, New York City: Raccoon.

Jones, Charles E., Gaylordsville, Conn.:
Eastern Red-Tailed Hawks (2 specime)

Eastern Red-Tailed Hawks (2 specimens). JOHNSON, ROBERT, New York City:

Brown Sapajou. Junker, C., Brooklyn, N. Y.:

Fox Squirrel. KELLY, Mrs. R. A., Mt. Vernon, N. Y.:

Green Grass Parrakeets (2 specimens).

KENT, MRS. GEORGE E., Dark Harbor, Me.: Leadbeater Cockatoo. KEYES, JOHN and LENTON, New York City:

Alligators (2 specimens).

KOEHLER, GEORGE W., Weatherly, Pa.: Red-Bellied Brown Snake.

KOHN, MASTER HOWARD L., New York City: Squirrel Monkey.

KUCHE, MASTER WILLIAM, New York City: Alligator.

KUSER, COLONEL ANTHONY R., Bernardsville, N. J. Great Horned Owl.

LADDEN, JOSEPH, New York City:

Yellow-Headed Amazon.
LANG, MRS. ANNA, New York City:

Alligator.
LEINDORF, J. P., New York City:
Gray Fox.

LESAN, MISS DEBORAH, Scarsdale, N. Y.: Alligator.

LIEFENBRUNER, ISIDORE, New York City: Mexican Goldfinch.

MACFALL, Miss, Mamaroneck, N. Y.: Weeper Sapajou.

McDonald, James, New Rochelle, N. Y .: Alligator.

McFadden, Mrs. John H., New York City:

Kinkajou.

McFeeley, Mrs. E. J., Bradley Beach, N. J.: Hooded Sapajou.

McHugh, Mrs. Clara E., New York City:

Strawberry Finches (2 specimens).
MANDL, MISS EILEEN M., Tuckahoe, N. Y.: 6 De Kay's Snakes, 6 Garter Snakes.

MAR, MRS. CURTIS J., New York City:

Undulated Grass Parrakeet.

MARCH, DOUGLAS D. H., Tela, Honduras, C. A.:

2 Barba Amarillas, 2 Hog-Nosed Vipers, 1 Green Tree Viper. Total, 5 specimens.

MARCHAL, ARTHUR, New York City: Alligator.

MARKEY, VINCENT, Clifton, N. J.:

Alligator.

MATTAUX, Louis, New York City:

Coati Mundi.

MARTIN, JOHN, New York City:

1 Texas Rattlesnake, 1 Bull Snake. MARTIN, JOSEPH W., New York City: Red Fox.

MEE, GEORGE, Clifton, N. J.: White-Throated Sapajou.

MELNYK, M. S., Midland, Texas: Horned Toads (2 specimens).

Mercer, Miss Betty, Camden, N. J.:

Mastigure.

MERWIN, MISS BETTY, Westport, Conn.:

Musk Turtle.

MILLER, PAUL N., JR., New York City: Alligator.

MILLER, SIR VICTOR CHARLES, New York City: Prairie Dog.

Morosini, Miss Julia, New York City:

Panama Amazon.

NARAMORE, W. W. and FORD, ALLAN P., Bridgeport, Conn.

Banded Rattlesnakes (3 specimens).

NESHANKIN, MRS. A. M., New Rochelle, N. Y.:

Alligator.

NEW YORK AQUARIUM, New York City: Pilot Water Snake.

New York Times, New York City: Horned Toad.

Noble, Dr., G. K., New York City:

I Corn Snake, 1 Coachwhip Snake. NoLAN, MRS. T., Union City, N. J.:

Tovi Parrakeet.

OBRYAN, A., New York City: White-Faced Sapajou.

OKEETEE CLUB, THE, Switzerland, S. C .: Golden Eagle.

PADDOCK, R., New York City:

Tarantula.

PAINTER, KENYON V., Cleveland, Ohio:

Silvery-Cheeked Hornbill.

PARKAS, Mr. and Mrs. Joseph, New York City: Guenon.

PARKER, Dr. H. L., Spartanburg, S. C.: Opossums (2 specimens).

PATTEN, Mrs. G. W., New York City: Blue Solitaire.

PEASE, WILLIAM H., Mt. Vernon, N. Y.: Woodchuck.

PELLES, SYLVAN, Kansas City, Mo .: Pilot Blacksnake.

PELLICCIA, MISS MURIEL MAE, New York City: Alligator.

PERKINS, R. MARLIN, St. Louis, Mo.:

3 Cane-Brake Rattlesnakes, 4 Water Moccasins, 2 Say's King Snakes, 3 Yellow-Bellied King Snakes, 1 Holbrook's King Snake. Total, 13 speci-

PERKINS, ROY, Rotan, Texas:

Horned Toad.

PETERSON, RUDOLF M., New York City: White-Nosed Coati Mundi.

PICKERILL, E. N., New York City: Madagascar Lovebirds (2 specimens).

PIOSELLI, D. J., New York City: Troupial.

PLIMPTON, CALVIN H., New York City: Gila Monster.

POWELL, WILLIAM C., New York City: English Ring-Necked Pheasant.

RAINEY, L., New Rochelle, N. Y .: Stump-Tailed Lizard.

RAMPPE, FRANK, New York City: Alligator.

REEVES, MARK W., Clinton, Conn.:

Great Blue Heron.

REINHARDT, RICHARD C., New York City: Bonnet Macaque.

RICHMOND, MISS EDNA, New York City: Florida Cardinals (3 specimens).

RIEGEL, GEORGE S., Pelham Manor, N. Y .:

1 Squirrel Monkey, 1 Troupial. RITTIERODT, MRS. F., New York City: Canary.

RIZSAK, JOHN, Passaic, N. J.: Alligators (2 specimens).

ROGERS, H. H., Tuxedo, N. Y .:

ROGERS, MISS NATALIE, Brooklyn, N. Y .:

Weeper Sapajou. ROTH, MRS. M., New York City:

Golden Pheasant.

ROUNAN, Mrs. JOHN, Los Angeles, Calif .:

1 Gopher, 1 Red Racer, 1 Pilot Blacksnake, 1 Blue-Tonged Lizard, 7 Gila Monsters. Total, 11 specimens.

ROYS, BURT, Sheffield, Mass .: Banded Rattlesnake.

RYAN, RICHARD, New York City:

Alligators (2 specimens).

RYDER, MISS FLORENCE G., Brooklyn, N. Y.:

African Chameleon.

SANFORD, C. K., Margaretville, N. Y .: Bittern.

SCHIFFER, PINNEY, New York City:

1 Black Snake, 1 Coachwhip, 1 Horned Toad. Total, 3 specimens.

SCHULTZ, MRS. KARL. Port Washington, N. Y .: Guinea Pigs (2 specimens).

SHOWLER, H. L., New York City:

Alligator.

SIEMEN, GERHARD F., Union City, N. J.:

1 Scarlet Snake, 2 DeKay's Snakes, 1 Corn Snake. Total, 3 specimens.

SIEVERS, H. A., New York City: Black-Bellied Plover.

SLATER, DAVID, New York City: Virginia Rail.

SMITH, E., New York City: Squirrel Monkey.

SPICER, ROBERT T., New York City: Gopher Tortoise.

SPIVAK, JACOB, New York City: Kinkajou.

STADELMAN, R., Glenolden, Pa.:

1 Black-Tailed Rattlesnake, 4 Baby Copperhead Snakes.

STEIN, LOUIS, New York City:
1 Wood Tortoise, 1 Painted Turtle.

STEINERT, MRS. C., New York City:

Shama Thrush.

STEPHENS, MISS ANNIE M., New York City:

White-Throated Sapajou.

STERLING, HARRY, S. S. Leviathan, New York City: Hooded Sapajou.

STROUD, L. J., Rosebank, S. I., N. Y .:

Hudsonian Curlew. SUITER, WILLIAM J., New York City:

Texas Box Tortoises (8 specimens).

SULLIVAN, FRANK, New York City: Marmoset.

TABENHOUSE, B., New York City:

4 Banded Rattlesnakes, 3 Copperhead Snakes.

TAMARGO, MISS MILDRED, New York City: Albino Angora Rabbits (2 specimens).

TAYLOR, IRVING K., Bass River, Mass.:

Snapping Turtle.
Telfer, Miss Betry, New York City: Opossums (9 specimens).

THOMAS, Mrs., New York City: White-Faced Sapajou.

THOMAS, MISS LILLIAN, New York City: Sooty Mangabey.

THOMPSON, HOWARD E., New York City: Flying Squirrel.

Town of New Castle, Chappaqua, N. Y.: Mother Opossum and 8 young.

TUTTLE, H., Verona, N. J.: Java Macaque.

VAN BLARCOM, MRS. J. W., Norwood, N. J.: White-Nosed Coati Mundi.

VANDERBILT, W. K., New York City:

4 Giant Tortoises, 1 Marine Iguana, 8 Land Iguanas. Total, 13 specimens.

VICAT, MRS. J. FENIMORE, Newark, N. J.: American Blue Jay.

VIDA, STEPHEN, Corona, L. I., N. Y.: 6 Boa Constrictors, 3 Anacondas.

VISCOUNT, ROBERT, New York City: Red-Tailed Hawk,

Voorhies, Miss Louise, Cranford, N. J.: Purple Sugar-Birds (2 specimens).

WALASCHEK, S. J., New York City: Horned Toads (2 specimens).

Walsh, Donald, Jamesport, L. I., N. Y.: White-Faced Sapajou.

Walsh, Miss Elizabeth, New York City: Alligator.

WALTON, COATES, Philadelphia, Pa.: 2 White-Eared Conures, 1 Roseate Cockatoo.

Weber, Orlando F., Jr., New York City: Texas Armadillo.

WEEKS, I. T., Brawley, Calif.: Leopard Lizards (2 specimens).

Weiss, Louis, New York City: Virginia Rail.

WELCH, MAJOR WILLIAM A., Iona Island, N. Y.: Beaver (2 specimens).

Wells, Eberhard, New York City: Rattlesnakes (3 specimens).

WIEGAND, BURTON S., Newton, N. J.: Rattlesnakes (2 specimens).

WIETING, MRS., Pelham, N. Y.: Alligator.

WILLIAMSON, F. E., Merchantville, N. J.: 1 European Greenfinch, 1 Lined Seedeater.

Wolfgang, Harry G., Leetonia, Ohio: Alligators (5 specimens).

ZIKA, RUDOLF, New York City: Ocelot.

National Collection of Heads and Horns

GARRETSON, M. S., New York City: Cattalo Horns.

STEWART, LISPENARD, COLLECTION, through William R. Stewart, New York City: Woodland Caribou (Rangifer tarandus caribou). Two Mounted Heads. Maine Moose (Alces americanus). Three Mounted Heads. White-Tailed Deer (Odocoileus virginianus). Two Mounted Heads. American Elk (Cervus canadensis). Four Mounted Heads and One Pair of Antlers.

Rocky Mountain Big-Horn Sheep (Ovis canadensis). Mounted Head. Prong-Horned Antelope (Antilocapra americana). Mounted Head. Tarpon (Megalops atlanticus). Two Mounted Specimens.



LIST OF ACCESSIONS BY THE

New York Zoological Society

AT THE AQUARIUM

1928

BY GIFT

ALBER, MISS F., Brooklyn, N. Y.: Small Alligator.

ARLITY, MR. I. A., Grantwood, N. J.: Small Alligator.

AQUARIENFISCH IMPORT & EXPORT COMPANY, Wandsdek, Germany: Psettus argentus (5 specimens).

Pomacentrus trilineatus (4 specimens).

Gobius species (2 specimens).

BARASHISK, MASTER MUNDY, New York City: Butterfly Fish, Four-eye Fish.

BATH, MRS. JOSEPHINE A., Brooklyn, N. Y .: Small Alligator.

BAYLISS, MR. E. CALVER, Toronto, Ontario, Canada: Large Turtle.

BELDT, Mr. O. C., St. Louis, Mo.: Red-Bellied Dace (100 specimens).

BERNSTINE, MR. G., Brooklyn, N. Y.: Small Alligator.

BLANK, MASTER ROBERT, Bellmore, Long Island: Small Alligators (2 specimens).

BLEEKER, MASTER THEODORE, Brooklyn, N. Y.: Painted Turtle.

Browers, Mr. Gustav, Brooklyn, N. Y .: Small Alligator.

BUNKER, MR. CHRIS, New York City: Diamond Back Terrapin.

CHRISTMAN, MR. CHARLES A., Brooklyn, N. Y.: Small Alligator.

CLASS, MR. PHILIP, Jamaica, L. I.: Small Alligator.

CONNOR, MR. GEORGE A., New York City: Small Alligator.

COOK, MR. ANDREW, JR., Brooklyn, N. Y.: Small Alligator (2 specimens).

Coulson, Mr. Eli, Bergenfield, N. J.: Snapping Turtle.

CURRIE, MRS., Boston, Mass.:

Turtle.

DETROIT AQUARIUM, Detroit, Michigan: Small Snapping Turtles (31 specimens), Blanding Turtles (3 specimens), Painted Turtles (8 specimens), Soft Shell Turtle.

Doze, J. B., Superintendent, Pratt, Kansas:

Red-Bellied Turtles (12 specimens), Soft Shell Turtles (2 specimens), Cumberland Turtles (5 specimens), Mud Turtles (7 specimens), Snapping Turtle, Total, 27 specimens.

ELYFRAG, Mrs. B., New York City:

Green Turtle.

Eross, Mr. J., New York City:

Small Alligator.

FEMAN, MR. H., Brooklyn, N. Y.: Tortoise.

FERGUSON, MASTER RAYMOND, New York City: Small Alligator.

Francis, Miss Elizabeth, New York City: Painted Turtles (3 specimens).

FROST, MR. HARRY, New York City: Small Alligator.

FUHR, MR. ELIAS, New York City: Turtle.

GAREOIN, MR. S., Brooklyn, N. Y.: Wood Turtle.

GILL, MR. LEIGH H., New York City: Wood Turtle, Painted Turtle.

GINSBERG, Mr. OSCAR, New York City: Turtle.

GROSSMAN, MASTER LEO, New York City: Turtle.

HAASE, Mr. WILLIAM, New York City: Painted Turtles (2 specimens).

HAIGHT, MASTER FREDERICK E., New York City: Hermit Crab.

HAY, CAPTAIN, New York City: Small Alligator.

HEAVY, MR. W., Hoboken, N. J.:

Wood Turtle.

HOEYER, Mr. AASE, New York City: Small Alligator.

HOLLAND, MR. CHARLES W., Roselle Park, N. J.: Painted Turtles (15 specimens), Spotted Turtle.

Holy, Mr. Roy, Brooklyn, N. Y.: Small Alligator.

HOTALING, MISS G., Staten Island, N. Y.: Green Turtle.

HYDE, DR. A. M., Hoboken, N. J.: Small Alligators (2 specimens).

HYSLOP, MISS SALLY, Staten Island, N. Y.: Small Alligator.

Johnson, Mr. Vincent, New York City: Small Alligators (2 specimens).

KEES, CARL F., New York City:

Sea Urchin.

KENT, MR. WILLIAM, New York City: Small Alligators (3 specimens)

KIRCHNER, MR. FRED, New York City: One Turtle. Kuhne, Mr. Paul, New York City: Small Alligator.

KURTZMAN, MR. N., Brooklyn, N. Y.: Wood Turtle.

LAVER, MR. STEVEN, East Amherst, L. I.: Small Alligator.

LIPKIND, Mr. Morris, Rockaway, N. Y.: Spiney Box Fish.

LIOT, Mr. FERNAND, Brooklyn, N. Y.: Small Alligator.

MARRONE, MR. MICHAEL, New York City: Snapping Turtle.

MARTIN, MR. FRANK V., New York City: Small Alligators (4 specimens)

McCash, Mr. P. H., New York City: Box Tortoise.

Menaldino, Mrs. E., New York City: Cumberland Turtle.

Melos, Mr. Andrew, New York City: Painted Turtles.

MELTZ, MR. J. O., Brooklyn, N. Y.: Small Alligator.

Morrel, Mrs. J., Brooklyn, N. Y.: Spotted Turtles (14 Specimens).

MURPHY, MR. GILBERT, New York City: Small Alligator.

PANTHER, MR. PHILIP M., Brooklyn, N. Y.: Turtle.

PAWLOVSKY, Mr. ISADORE, Hicksville, N. Y.: Box Tortoise.

Peife, Mr. Alphonse, Brooklyn, N. Y.: Snapping Turtle.

Perlin, Master George, Brooklyn, N. Y.: Butterfly Fish, Four-eye Fish.

RESPESS, CAPTAIN, S. S. Bylayl. Northern Gannett.

SANFORD, Mrs. LISA F., New York City: Small Alligators (3 specimens).

Santoro, Mr. John, Brooklyn, N. Y.: Spider Crab.

SAVAGE, Mr. JAMES H., Brooklyn, N. Y.: Box Tortoise.

Schick, Mr. R., New York City:
Painted Turtles (6 specimens).

SCHIMMEL, MR. WILLIAM, Staten Island, N. Y.: Snapping Turtle.

SCOTT, CAPTAIN J. E., New York City: Wood Turtle.

Wood Turtle.
SHEARN, C. J., JR., New York City:
Small Alligator.

SMITH, MR. RAYMOND, New York City: Wood Turtle.

SORRA, MR. PHILIP, New York City:
Painted Turtle.

STEVENS, Mrs. ROBERT, Central Park, L. I .: Small Alligator.

STRUSS, MISS L. E., New York City: Small Alligator.

SUB, MR. C., Brooklyn, N. Y.:

Small Alligator.

SWENSON, Mr. HARRY, Brooklyn, N. Y .: Blue Lobster.

SYMMES, MASTER DWIGHT, New York City: Small Alligator.

THOMPSON, BOYCE, Superior, Arizona:

Southwestern Arboretum, Tortoises (2 specimens).

Trebbing, Mr. Laurence, Bridgeport, Conn.: Wood Turtle.

TUBAN, Mr. GEORGE, New York City: Small Alligators (2 specimens).

TUXEDO CLUB, Tuxedo Park, N. Y.: 225 Adult Rainbow Trout.

VAJDA, PROFESSOR J., New York City: Small Alligator.

VANDERBILT, MR. WILLIAM K., New York City:

Galapagos Penguins (3 specimens), Iguanas (3 specimens), Pacific Boobies (3 specimens), Flightless Cormorants (3 specimens). VETTER, Mr., New York City:

Large Snapping Turtle.

VAN VESSEN, Mr. J., Staten Island, N. Y.:

Box Turtle. WAGNER, MISS, New York City:

Small Alligators (2 specimens).

WAMBACH, Mr. THOMAS C., Brooklyn, N. Y.: Small Alligator.

Weinberger, Mrs. W., Keyport, N. J.:

Small Alligator. WEST, MASTER ULYSES, New York City:

Spotted Turtles.

WISENFIELD, MISS ANNIE, Brooklyn, N. Y .:

Small Alligator.

WORTLY, MASTER HOWARD, Jersey City, N. J.: Small Alligator.

Young, Captain E. L., Atlantic City, N. J.: Collection of 102 Salt Water Fishes.

PURCHASED BY THE SOCIETY

Salt Water, Local.—Fishes numbering 5251, representing 53 species, invertebrates numbering 785, representing 8 species, and 1 turtle were collected by the well-boat Seahorse. Quantities of live foods were also secured. Specimens purchased from local fishermen are included. Thirty codfish were purchased at Sheepshead Bay and 15 seahorses at Sayville, L. I.

Salt Water, Tropical.-Nurse Shark, 4; Sting Ray, 1; Sea Catfish, 10; Spotted Moray, 11; Green Moray, 15; Mud Pusser, 280; Squirrel Fish, 5; Yellow Mackerel, 2; Graysby or Coney, 30; Black Grouper, 34; Red Grouper, 57; Red Hind, 25; Rock Hind, 6; Nassau Grouper, 23; Jewfish, 6; Scamp, 9; Gag, 19; Butter Hamlet, 2; Gray Snapper, 47; Dog Snapper, 16; Schoolmaster, 201; Muttonfish, 20; Spot Snapper, 182; Yellow Tail, 38; Golden Grunt, 2; White Grunt, 238; Yellow Grunt, 15; Blue-striped Grunt, 77; Black Margate, 1; Porkfish, 364; Tom Tate, 37; Hogfish, 19; Pudding Wife, 19; Slippery Dick, 4; Burrfish, 1; Spiny Boxfish, 1; Porcupine Fish, 1; Shark Sucker, 5; Red Parrot Fish, 1; Common Parrot, 140; Mud Parrot Fish, 8; Plum Parrot Fish, 7; Rainbow Parrot, 12; Blue Parrot Fish, 23; Spade Fish, 11; Filefish, 70; Common Trigger, 160; Queen Trigger Fish, 6; Ocean Trigger Fish, 4; Scotch Porgy, 5; Pinfish, 38; Sailors Choice, 59; Sheepshead, 4; Salema, 24; Sand Perch, 2; Bermuda Chub, 19; Ribbon Fish, 1; Beau Gregory, 145; Blue Gregory, 5; Sergeant Major, 143; Brown Tang, 29; Blue Tang, 27; Cowfish, 3; Southern Puffer, 4; Puffer, 2; Princess Rockfish, 1; Scorpion Fish, 4; Butterfly Fish, 26; Black Angel Fish, 238; French Angel Fish, 15; Blue Angel Fish, 168; Queen Angel Fish, 7; Towsend's Angel Fish, 3; Sea Urchin, 1; Trepang, 1; Conch, 12; Horse Conch, 1; Spiny Lobster, 39; English Spiny, 1; Rock Crab, 20; Princess Rock Crab, 1; Devil Crab, 1; Hermit Crab, 4; Queen Crab, 1; Stone Crab, 24; Red Crab, 1; Sea Pigeon, 1. Total, 3,371 specimens of 57 species.

Fresh Water, Local.—The following were collected by employees of the Aquarium in local park lakes. Pearl Roach, 31; Common Roach, 512; Goldfish, 140; Sunfish, 25; Eels, 3; Chain Pickerel, 40; Gross Pickerel, 23; Yellow Perch, 4; Suckers, 1; Carp, 1; Large Mouthed Black Bass, 3; Grayfish, 12. 10 Hellbenders and 12 Mud Puppies were purchased at Youngsville, Pa.

Fresh Water, Tropical.—The following were purchased from various parties; African Lungfish, 43; African Catfish, 3; Polypterus, 1; Electric Eels, 2; Guppies, 200.

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DARLINGTON, PETER, DAY, KATHARINE, DAY, THEODORE, DEGENER, EDWARD M., DEGENER, LOIS ANN, DEGENER, PAUL ARNOLD, DELAFIELD, PEGGY, DICKERMAN, HONOR, DICKEY, CHARLES D., JR., DICKEY, MARY SLOAN, Dowd, ANDREA, DURYEA, NINA, DURYEA, SAMUEL SLOAN, EGGERT, FLETCHER, EGGERT, MARY W., ELDRIDGE, ELAINE, ELDRIDGE, MARY ALTHEA, Elmendorf, Nancy, Elmendorf, Ten Eyck, ELMENDORFF, ANTHONY, ELMENDORFF, SARAH, FERRY, FRANCES, FERRY, JOHN M., FERRY, MAY M., FIELD, MARJORY L., FILLEY, MARY GRAFTON, FINCH, ANNA CRANE, FINCH, CHARLES, FINCH, EDWARD RIDLEY, JR.,

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CHARTER

OF THE

New York Zoological Society

CHAPTER 435, LAWS OF 1895.

AN ACT to incorporate the New York Zoological Society and to provide for the establishment of a zoological garden in the city of New York.

As amended by Chapter 146 of the Laws of 1902; and by Chapter 240 of the Laws of 1910.

See Chapter 432 of the Laws of 1900.

See Chapter of the city of New York, Section 626 of the Laws of 1901.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Charles A. Dana, Oswald Ottendorfer, Andrew H. Green, William H. Webb, Henry H. Cook, Samuel D. Babcock, Charles R. Miller, George G. Haven, J. Hampden Robb, Frederick W. DeVoe, J. Seaver Page, Rush C. Hawkins, David James King, Wager Swayne, Charles A. Peabody, Jr., Charles E. Whitehead, Charles R. Flint, Samuel Parsons, Jr., Mornay Williams, Henry E. Gregory, Isaac W. Maclay, Isaac Rosenwald, Hugh N. Camp, Andrew D. Parker, Cornelius Van Cott, William F. Havemeyer, Frederick Shonnard, William W. Thompson, Alexander Hadden, Edward L. Owen, John H. Starin, Rush S. Huidekoper, William W. Goodrich, Albert H. Gallatin, Frederick S. Church, Edward C. Spitzka, Robert L. Niles, Madison Grant, C. Grant La Farge, William Van Valkenburg, and such other persons as may, under the provisions of its by-laws become members of the corporation hereby created, are hereby created a body corpoate and public, by and under the name of New York Zoological Society.

- SEC. 2. Said corporation shall have power to establish, maintain and control zoological parks, gardens, or other collections for the promotion of zoology and kindred subjects, and for the instruction and recreation of the people. Said corporation may collect, hold, and expend funds for zoological research and publication, for the protection of wild animal life, and for kindred purposes, and may promote, form, and co-operate with other associations with similar purposes, and may purchase, sell, or exchange animals, plants, and specimens appropriate to the objects for which it was created.
- SEC. 3. The managers of said corporation shall have power to make and adopt by-laws for the management and government of its affairs and business, for the admission, suspension, and expulsion of its members, and for the terms and conditions of membership; to prescribe the number and mode of election of its officers; to define their duties; to provide for the safe-keeping of its property, and from time to time to alter and modify its By-laws.
- SEC. 4. The affairs and business of said corporation shall be managed and controlled by a board of managers, the number of whom shall be prescribed by the by-laws. The first board of managers shall be divided by lot into three classes, equal in number, one of which classes shall hold office for one year, another for two years, and the other for three years; and all persons elected to be managers at any subsequent election shall hold office for three years, and until

others are elected in their stead. There shall be a president, two vice-presidents, treasurer and secretary, to be elected by the board of managers annually, who shall hold office until others are elected in their stead. The first meeting under this act may be held at any time upon a notice of five days, signed by any five of the incorporators named in the first section of this act, fixing a time and place for such meeting, a copy whereof shall be mailed to each of said incorporators at his usual post-office address, and twelve of such incorporators shall be a quorum for the purpose of organization, adoption of by-laws, and election of officers. No manager of said corporation shall be interested, directly or indirectly, in any contract concerning its property or affairs.

- SEC. 5. Said corporation may raise money by the issue of bonds, secured by a mortgage on any or all of its property not acquired from said city or state.
- SEC. 6. Said corporation may take, purchase, and hold real and personal estate necessary for the purpose of its incorporation, and shall possess the general powers and be subject to the restrictions and liabilities prescribed in Article II of Chapter 23 of the Consolidated Laws, entitled "General Corporation Law," being chapter 28 of the Laws of 1909.
- Sec. 7. The commissioners of the sinking fund of the said city are authorized in their discretion to allot, set apart, and appropriate for the use of said corporation, any of the lands belonging to said city north of One Hundred and Fifty-fifth Street, but not in the Central Park, and such appropriation may be revoked if, after the expiration of five years from the passage of the act, a zoological garden is not established thereon; said grounds thus set apart and appropriated shall be used for no purpose whatsoever except those aforesaid. As soon as any lands are set apart the Mayor of the said city of New York and the President of the Department of Parks of said city, shall become and be ex-officio members of the board of managers of said corporation. If at any time the animals now composing the menagerie of Central Park shall be removed therefrom by the authorities having charge thereof, said authorities may make an arrangement with the incorporators named in this act or the corporation formed by them for leasing or sale of such animals to such incorporators or corporation, and said incorporators or corporation shall have a preference over any other person or corporation in respect thereto upon the same terms which said authorities could make with any such other person or corporation, or upon such other terms as to such authorities may seem proper, but nothing herein provided shall be construed as giving the commissioners of the Department of Public Parks authority to sell, lease, transfer, or in any other wise dispose of said animals or other property connected with or belonging to said menagerie.
- SEC. 8. Admission to the said gardens shall be free to the public for at least four days, one of which shall be Sunday, in each week, subject to such rules and regulations as shall be prescribed by said corporation.
 - SEC. 9. This act shall take effect immediately.

AN ACT to amend chapter four hundred and thirty-five of the laws of eighteen hundred and ninety-five, entitled "An act to incorporate the New York Zoological Society and to provide for the establishment of a zoological garden in the City of New York" in relation to real and other property.

Became a law May 26, 1917, with the approval of the Governor. Passed, three-fifths being present.

ACCEPTED BY THE CITY.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Chapter four hundred and thirty-five of the laws of eighteen hundred and ninety-five, entitled "An act to incorporate the New York Zoological Society and to provide for the establishment of a zoological garden in the City of New York," as amended by chapter two hundred and fifty of the laws of nineteen hundred and ten, is hereby further amended by adding thereto a new section to read as follows:

7-a. The board of estimate and apportionment in the City of New York may, in its discretion, set apart and appropriate upon such conditions as it may deem expedient for the extension and development of the work and objects of the said New York Zoological Society, the whole or any part of that portion of Bronx Park in the City of New York, lying to the south of Pelham avenue and Pelham parkway, for the use of the said New York Zoological Society, the said lands so to be appropriated to be described particularly in the order of the board of estimate and apportionment hereby authorized. The said board of estimate and apportionment may also, in its discretion at the time of setting apart and appropriating said lands or any part thereof to the New York Zoological Society, and annually thereafter, in addition to any sum or sums which it may have appropriated for the support and maintenance of the New York Zoological Park, appropriate to the use of said society, such sum or sums in its discretion for the care and maintenance of the additional lands that may be allotted to the said society under the authority hereby conferred, as it may deem best.

2. This act shall take effect immediately.

New York Zoological Society

AND THE

New York Aquarium

CHAPTER 441, LAWS OF 1902.

AN ACT to authorize a further appropriation to the New York Zoological Society for the support of the New York Aquarium.

As amended by Chapter 239 of the Laws of 1910.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Chapter four hundred and forty-one of the laws of nineteen hundred and two, entitled "An Act to authorize a further appropriation to the New York Zoological Society for the support of the New York Aquarium," is hereby amended to read as follows:

SECTION 1. The Board of Estimate and Apportionment of the City of New York may annually, in its discretion include in the budget for the then next ensuing financial year, in addition to any sum or sums which may be appropriated for the adequate support and maintenance of the New York Zoological Park or gardens, situated in the borough of the Bronx, and administered and controlled by the New York Zoological Society, a further sum or sums, in its discretion for the use of the said New York Zoological Society, provided, however, that the additional appropriation hereby authorized shall be made only in case an agree-

ment is entered into between the said New York Zoological Society and the City of New York, acting by its Board of Estimate and Apportionment for the adequate keeping, maintenance, extension, preservation and exhibition of the building and approaches thereto and collection of aquatic animals and plants contained therein, known as the New York Aquarium, situated in the Battery Park in the Borough of Manhattan in said city, and also for furnishing opportunities for study, research and publication in connection with said collections, which contract the said Board of Estimate and Apportionment is hereby expressly authorized, in its discretion, to make upon such terms and conditions as may be agreed upon with the said New York Zoological Society, and which contract shall also provide how the duty of the commissioner of parks for the borough of Manhattan and Richmond in respect to maintaining the said aquarium now imposed upon him by law shall be performed.

Sec. 2. This act shall take effect immediately.

GRANT OF SOUTH BRONX PARK

TO THE

New York Zoological Society

At a special meeting of the Commissioners of the Sinking Fund, City of New York, held on March 24, 1897, a resolution was passed allotting South Bronx Park for the use of the New York Zoological Society upon conditions entirely satisfactory to the Society.

The full text of the resolution is as follows:

WHEREAS, by chapter 435 of the Laws of 1895, entitled "An act to incorporate the New York Zoological Society and to provide for the establishment of a Zoological Garden in the City of New York," it is provided that the Commissioners of the Sinking Fund of the City of New York are authorized in their discretion to allot, set apart and appropriate, for the use of said corporation, any of the lands belonging to said city north of 155th Street, but not in Central Park,

RESOLVED, that the said Commissioners of the Sinking Fund do hereby allot, set apart and appropriate for the use of said corporation, a tract of land in the southern portion of Bronx Park, embracing an area of about 261 acres, and consisting of so much of said park as lies south of Pelham Avenue, upon the following terms and conditions, to wit:

First. That said grounds thus set apart and appropriated, shall be used for no other purpose whatsoever except for the sole purposes of said Zoological Garden as the same are specified in the act aforesaid, and that said appropriation of said lands hereby made shall be revoked if, after the expiration of three years from the date of the commencement of the work by the Park Department for the necessary improvement of the grounds as referred to and described in the sixth paragraph of this Resolution, a Zoological Garden is not established upon said tract of land.

Second. That the original equipment of buildings and animals for said Zoological Garden shall be paid for from funds contributed by the New York Zoological Society, and that said Society shall, before it enters into occupation of the allotted land and within one year from the date of this Resolution, raise one hundred thousand dollars by subscription, and within three years from the date of the commencement of the work by the Park Department for the necessary improvement of the grounds as referred to and described in the sixth paragraph of this Resolution, the further sum of at least one hundred and fifty thousand dollars. If the said Society shall fail or neglect to raise said funds within the periods respectively fixed therefor, it shall, on demand of the Commissioners of the Sinking Fund, surrender to the City of New York the land allotted to it as a site for said Garden, and all improvements made thereon. The said Society shall not mortgage its buildings or animals, or any of its property within said Garden, which is directly or indirectly maintained by the City of New York.

Third. The said Zoological Society shall have the power to establish an endowment fund from the donations and bequests, which fund shall be used solely, unless otherwise specified by the donors thereof, for the general uses and purposes of said Society. The funds of said Society, other than the sums contributed to said endowment fund, shall be expended upon buildings and other enclosures for animals, for the collections of animals, and for the general purposes of the Society. Among the funds thus to be expended shall be the subscriptions of members, life members and patrons, and all cash donations to said Society, other than those made for the purposes of the endowment fund, and all moneys derived from the sale of animals; and the net proceeds of the privileges that may be developed in said Garden, such as refreshments, boating, riding animals, the sale of photographs, etc., shall be used for, and expended in the increase of the collections; and payments from the funds of such Society, including the endowment fund, shall be made directly from the treasury of the Society.

Fourth. The library, pictures, maps, office furniture, and other movable property purchased and owned by the Society shall remain the property of the Society, and excepting living animals, may be removed by said Society without the written consent of the Board of Parks. All property paid for from the maintenance fund, hereinafter referred to, shall belong to the City.

Fifth. So long as the said Society is entrusted with the control and management of the said Zoological Garden, and the city provides for the proper maintenance and care of the animals and collections therein, the said Society shall not remove any of its animals or collections for exhibition elsewhere without the consent of the Board of Parks, but if the City shall ever cease to provide for the proper maintenance and care of the said animals and collections, the said Zoological Society shall have the right, upon giving three months' notice in writing to the Board of Parks, to remove the said animals and collections owned by it. The said Society shall have the right to improve its collections by the exchange of animals, and also by the sale of animals not needed for exhibition; but all moneys derived from such sale or exchange of animals shall be used only for the purpose of increasing said collections.

Sixth. The City of New York shall annually provide the necessary funds for the maintenance and care of the Zoological Garden, its buildings, inclosures and other improvements made from time to time therein, and the animals and collections of said Society; but the appropriation for the first year is not to exceed Sixty thousand dollars (\$60,000). It shall be the duty of the City to provide from such sums or appropriations, as may be applicable thereto, the cost of the necessary improvement of the ground prior to the erection of buildings and inclosures, including such roads, walks, fences, grading, water supply, drainage and heating as may be or become necessary for the proper development of said Zoological Garden, all of which work of preparation and construction shall be performed in conformity with the plans therefor to be agreed upon between the Park Department and the Zoological Society. The said City shall also furnish the necessary supply of water, and adequate police patrol and protection, and the salaries of all persons employed directly in the service and development of the Zoological Garden shall be paid from the maintenance fund, and from such other funds as may be available for and applicable to the purpose. Payments from the maintenance fund shall be made upon vouchers filed with the Comptroller and drawn in such form as he may direct; and said Society shall annually render the year then past, made on account of the said Zoological Garden, all revenues and resources thereof, a statement of the number of the members of said Society, of the donations received and of the number of animals in the Garden, the chief items of improvement made during the year, and all other information that the said Mayor may require.

Seventh. The Park Department shall at all times have access to the grounds, buildings and other inclosures of the said Zoological Society for general police visitation and supervision, and for all other lawful purposes. Prior to the commencement of any work on said Garden the general plan therefor shall be submitted to and approved by the Park Board, and all subsequent plans for buildings, roadways and paths shall also be so submitted and approved. No living tree shall be cut down or removed, except by the express authority of said Park Department, but the said Zoological Society shall have the right to remove dead trees and such bushes as it may be necessary to remove in the preparation of inclosures for animals, or in making other improvements. The said Department of Parks shall plant such and so many shade trees, aquatic plants, shrubs and flowers as may be necessary to enhance and secure the seclusion, beauty and usefulness of the park, and shall do and perform all the work of gardening necessary to carry out the general plan of improvement and the subsequent plans as may be agreed upon between the said Zoological Society and the said Department of Parks.

Eighth. The said Zoological Garden and its collection shall be free to the public without the payment of any admission fee or gratuity whatsoever for not less than seven hours a day on at least five days of the week, one of which shall be Sunday, and also on all legal holidays and half holidays, subject to such reasonable regulations as may be made by said Society, but the said Society may close the area devoted to the collections of animals on not more than two days in each week, and on such days may charge an admission fee which shall be fixed by said Society, and all moneys derived from such admission fees shall be expended by said Society in the increase of the collections or in the improvement of said Garden or its buildings; but the portion of the grounds situated east of Boston Road, and all the Bronx River below the Boston Road bridge shall be open to the public at all times as pleasure grounds, subject to such reasonable regulations as may be adopted by said Society with the approval of the Park Department, and the occupancy of that portion of the park by herds of animals or by collections, shall be subject to the consent of the Park Department.

Ninth. The said Zoological Society shall have the right and power to appoint, direct, control and remove all persons and officers employed by them in and about the Zoological Gardens, and to fix the salaries of such persons and officers and to make promotions, but all regular employees shall be chosen, and their salaries fixed and promotions made, by reason of special fitness and ability.

Tenth. Subject to the conditions hereinbefore contained, the said Zoological Society shall exercise entire control and management over all the affairs of the said Zoological Garden.

BY-LAWS

OF THE

New York Zoological Society

As Amended on May 21, 1925.

ARTICLE I.

MEETINGS OF THE SOCIETY

SECTION 1. The office and place of business of the New York Zoological Society shall be in the City of New York, unless otherwise ordered.

- SEC. 2. The Society shall hold its annual meeting for the election of Managers, and other business, on the second Tuesday of January, or such day thereafter during the month of January to which said annual meeting shall adjourn.
- SEC. 3. Special meetings of the Society shall be called by the Secretary, upon the request of the President or the Chairman of the Executive Committee, or at the written request of ten members.
- SEC. 4. Notices of all meetings shall be mailed to each member of the Society at least three days before such meeting.
- SEC. 5. At meetings of the Society twenty members shall constitute a quorum.
 - SEC. 6. The order of business shall be as follows:
 - 1. Roll Call.
 - 2. Reading of minutes not previously read.
 - 3. Report of Executive Committee.
 - 4. Report of Secretary.
 - 5. Report of Treasurer.
 - 6. Report of the Director of the Zoological Park.
 - 7. Report of Director of the Aquarium.
 - 8. Election of Managers.
 - 9. Communications.
 - 10. Miscellaneous business.
 - 11. Reports and resolutions.

ARTICLE II.

BOARD OF MANAGERS

- SEC. 1. The Board of Managers shall consist of thirty-six members, together with the Mayor of New York and President of the Park Board, or Commissioner for the Bronx, who shall be members ex-officio of the Board.
- SEC. 2. Twelve Managers shall constitute a quorum; but seven Managers may transact current business, and adjourn, subject to the subsequent approval of a meeting at which a quorum shall be present.

- SEC. 3. The Board of Managers shall hold an annual meeting on the twenty-sixth day of December in each year, unless said date shall fall upon a Sunday, in which event the annual meeting shall be held on the following day. Regular meetings of the Board may also be called by the Secretary on the third Tuesdays of October and April upon the request of the President or Chairman of the Executive Committee. Special meetings of the Board shall be called at any time by the Secretary upon the request of the President or Chairman of the Executive Committee, or at the written request of five managers.
- SEC. 4. Notices of meetings of the board shall be mailed to each Manager at least three days before such meetings.
- SEC. 5. The successors to the outgoing class of Managers shall be elected by the Society at its annual meeting, but vacancies in the board may be filled for the unexpired term by the Board of Managers, or by the Executive Committee.
- SEC. 6. A Nominating Committee shall be annually appointed by the Executive Committee, and shall consist of three members of the Society at large, who shall nominate and post ten days before the annual election the names of twelve persons to succeed the outgoing class of Managers in a conspicuous place in the office of the Society.
- SEC. 7. No person shall be eligible for the election of the Board of Managers except to fill vacancies, unless his name shall have been posted as a candidate by such committee, or by not less than ten members, in writing, in a conspicuous place in the office of the Society ten days before the annual election. All candidates for election as Managers must be Life Members, Patrons, Associate Founders, or Founders of the Society.
- SEC. 8. Any Manager who shall fail to attend three consecutive meetings of the Board, unless excused by a vote of the Board, shall cease to be a Manager.
- SEC. 9. The Board of Managers shall at its annual meeting elect a President, two Vice-Presidents, a Secretary, and Treasurer, who shall hold office for one year, or until their successors are elected. The President, Vice-Presidents, and Treasurer shall be members of the Board.
- SEC. 10. The Director of the Zoological Park, the Director of the Aquarium, and all other persons employed by the Society, shall be appointed by the Board or by the Executive Committee, and shall hold office during the pleasure of the Board.
- SEC. 11. The Board shall, at its annual meeting, elect an Executive Committee and Auditing Committee, which shall hold office for one year, or until their successors are elected. The Board of Managers and the Executive Committee shall also have authority to appoint such other Committees or officers as they may at any time deem advisable and to delegate to them such powers as may be necessary.
- SEC. 12. The order of business of the meetings of the Board shall be as follows:
 - 1. Roll Call.
 - 2. Reading of minutes not previously read.
 - 3. Report of Executive Committee.
 - 4. Report of Secretary.
 - 5. Report of Treasurer.
 - 6. Report of Auditing Committee.
 - Report of Director of Zoological Park.
 Report of the Director of the Aquarium.
 - 9. Election of Officers.

- 10. Election of Committees.
- 11. Election of new members.
- 12. Communications.
- 13. Miscellaneous business.

SEC. 13. All reports and resolutions shall be in writing, and the ayes and

nays may be called on any resolution at the request of one Manager.

SEC. 14. Whenever the funds of the Society shall permit, the Board of Managers or the Executive Committee may award medals or other prizes for meritorious work connected with the objects of the Society.

ARTICLE III.

OFFICERS

- SEC. 1. The officers of the Society shall consist of a President, two Vice-Presidents, a Treasurer, a Secretary, and a Director of the Zoological Park. These officers, with the exception of the Director, shall be elected at the annual meeting of the Board of Managers, but any vacancy may be filled for an unexpired term by the Board of Managers, or by the Executive Committee, until the next annual election.
- SEC. 2. The President shall preside at all meetings of the Board and of the Society, and shall be ex-officio a member of the Executive and Auditing Committees.
- SEC. 3. The Vice-Presidents shall, in the absence of the President, perform his duties and possess his powers, acting in the order of their election.
- SEC. 4. The Treasurer shall receive, collect and hold, subject to the order of the Board of Managers, or the Executive Committee, all dues, subscriptions, warrants from the City, fees and securities. He shall pay all bills as ordered by the Board of Managers or the Executive Committee, and shall report to the Society at its annual meeting, and to the Board of Managers at all regular meetings, and to the Executive Committee at each meeting. He shall keep all moneys and securities in some bank or trust company to be approved by the Board of Managers or Executive Committee. The books of the Society shall at all times be open to the inspection of the Managers.
- SEC. 5. The Secretary, unless relieved by the Board or Executive Committee, shall attend all meetings of the Society, of the Board and of the Standing Committees. He shall keep a careful record of all proceedings, shall have the custody of the seal, archives and books, other than books of account, and shall conduct the correspondence of the Society. He shall issue all notices and tickets, and shall perform such other duties as the Board may direct. He shall be a member ex-officio of the Executive, Aquarium, and Auditing Committees, and of the Scientific Council.
- SEC. 6. The Director of the Zoological Park shall be elected annually by the Executive Committee at a salary to be determined by said Committee, and shall hold office until removed or his successor chosen by said Committee. He shall be the responsible administrative officer of the Park, and shall recomment to the Executive Committee candidates for the various positions in the Park. He shall also perform all such other duties in connection with the business, scientific, and literary administration of the Society as may be assigned to him by the Executive Committee.
- SEC. 7. The Director of the Aquarium shall be elected annually by the Executive Committee, and shall hold office until removed or his successor is chosen by said Committee. He shall be the responsible administrative officer

of the Aquarium, and shall recommend to the Executive Committee all candidates for positions in the Aquarium. The director of the Aquarium shall be ex-officio a member and Chairman of the Aquarium Committee. He shall perform such other duties in connection with the Aquarium as may be assigned to him by the Executive Committee.

ARTICLE IV.

COMMITTEES

- SEC. 1. There shall be two standing committees, the Executive Committee and the Auditing Committee, which shall hold office for one year or until their successors are elected.
- SEC. 2. The Executive Committee shall consist of eight Managers, together with the President, Secretary and Treasurer of the Society ex-officio. Four members including the Chairman shall constitute a quorum, and all meetings shall be called by the Chairman. The Executive Committee shall fill all vacancies in its own number and shall have the full power of the Board of Managers, except so far as such delegation of power may be contrary to law.

SEC. 3. The Executive Committee shall have the control and regulation of the collections, library and all other property of the Society, and shall have the

power to purchase, sell and exchange specimens and books.

The Executive Committee shall also have power to employ and control all officials and employees of the Society, Park and Aquarium, to authorize the payment of a salary to the Chairman of the Executive Committee, the Secretary and other officials in its discretion, to fix the amount of all salaries, and generally to carry out in detail the directions of the Board of Managers and the terms of any contract between the City, or Park Board, and the Society.

- SEC. 4. All the rules and regulations for the examination of applicants for the various positions in the Park and Aquarium shall be made or approved by the Executive Committee.
- SEC. 5. The Executive Committee may regulate the auditing and payment for all current accounts.
- SEC. 6. The Executive Committee shall annually appoint an Aquarium Committee, whose duties and powers are set forth in Section II of Article IV of these By-Laws.
- SEC. 7. The Executive Committee shall annually appoint a Nominating Committee, whose duties and powers are set forth in Sections 6 and 7, Article II, of these By-Laws.
- SEC. 8. It shall also appoint a Scientific Council, whose powers and duties are set forth in Section 2 of Article V of these By-Laws.
- SEC. 9. The Committee shall make a written report at each regular meeting of the Board of Managers.
- SEC. 10. The Auditing Committee shall consist of three regular members of the Society, in addition to the President and Secretary, members ex-officio, and vacancies shall be filled by the Executive Committee. It shall be the duty of the Auditing Committee to audit, annually, the accounts of the Treasurer, of the Director of the Zoological Park, and of the Director of the Aquarium, and any other accounts of the Society, and shall report to the Board of Managers at its annual meeting.
- SEC. 11. The Executive Committee shall annually appoint an Aquarium Committee, not to exceed eight members of the Society, who shall hold office

until their successors are chosen. All vacancies shall be filled by the Executive Committee. The Director of the Aquarium shall be ex-officio a member and the Chairman of the Aquarium Committee, and such Committee may vest in him any or all of its powers. The Chairman of the Executive Committee and the Secretary of the Society shall also be ex-officio members of the Aquarium Committee. Three members shall constitute a quorum. The Executive Committee may delegate to the Aquarium Committee such powers as it may deem proper.

ARTICLE V.

SCIENTIFIC COUNCIL

- SEC. 1. The Executive Committee shall annually appoint a Scientific Council of not more than ten members, and shall fill all vacancies. Members of the Council shall hold office until their successors are appointed.
- SEC. 2. The duties of the Council shall be to act as an advisory board in all matters pertaining to the scientific administration of the Society, and especially as to the scientific features of the Park, the promotion of zoology by publications and otherwise, and the preservation of the native fauna of America.
- SEC. 3. Four members, including the Chairman, shall constitute a quorum. The Chairman shall be elected annually by the Council. The Chairman of the Executive Committee and the Secretary of the Society shall be members exofficio of the Council.

ARTICLE VI.

MEMBERS

- SEC. 1. The present members and such others as shall become associated with them, under the conditions prescribed by the By-Laws, shall be members of this Society as long as they shall comply with the By-Laws.
- SEC. 2. Members failing to comply with these By-Laws, or for other good and sufficient cause, may be expelled from the Society by the Executive Committee.
- SEC. 3. Candidates for membership shall be proposed and seconded by members of the Society. The name, occupation, and place of residence of every member as proposed shall be submitted for election to the Board of Managers or the Executive Committee, and such person, when elected, shall become a member upon payment of the annual dues, or of the fees as prescribed below.
- SEC. 4. There shall be a class known as Fellows, which shall consist of members of the Society who have rendered marked services to science, and shall be chosen by the Executive Committee. The privileges of Fellows shall be in all respects the same as those of regular members of the Society, but they shall be exempt from the payment of annual dues.
- SEC. 5. The annual dues shall be ten dollars, payable in advance, on the first day of May of each year, but the Executive Committee may remit the dues for the current year in the case of members elected between January 1st and May 1st of each year. The classes of membership shall be as follows:
- SEC. 6. The payment of \$200 at one time shall constitute any member a Life Member.

A member who has paid annual dues for a period of five years may thereafter, at any time, upon the payment of the difference between the amount of

dues already paid and \$200, become a Life Member, but such payment shall be not less than \$100.

- SEC. 7. The payment of \$1,000 at one time, or in the case of a Life Member, of \$800, shall constitute any member a Patron.
- SEC. 8. The payment of \$2,500 at one time, or in the case of a Patron of \$1,500, or of a Life Member of \$2,300, shall constitute any member an Associate Founder.
- SEC. 9. Any member who shall donate to the Society \$5,000, or property of equal value, or any Associate Founder who shall donate \$2,500, or any Patron who shall donate \$4,000, may be elected by the Board of Managers or Executive Committee a Founder.
- SEC. 10. Any member who shall have donated to the Society ten thousand dollars (\$10,000), or its equivalent, may be elected by the Board of Managers or the Executive Committee a Founder in Perpetuity. Such Founder in Perpetuity shall have the power to designate by a last will and testament his successor, who shall thereupon be entitled to all the rights and privileges of the original Founder in Perpetuity, including the right of designing in turn his successor.
- SEC. 11. Any member who shall have donated to the Society \$25,000, or its equivalent, may be elected by the Board of Managers, or the Executive Committee, a Benefactor. Benefactors shall have the rights and privileges of a Founder in Perpetuity.
- SEC. 12. Persons who have rendered marked service in the science of zoology or natural history may be elected Honorary Members, but not more than three such Honorary Members shall be elected in any one calendar year.
- SEC. 13. A resident member who shall have rendered marked scientific or professional services to the Society in any branch of its work may be elected by the Executive Committee a Life Member, Patron, Associate Founder, or Founder. A resident of New York who shall have rendered marked service in zoology or natural history may be elected by the Executive Committee a Permanent Fellow.
- SEC. 14. Non-residents who communicate valuable information to the Society, or who have rendered marked service in the science of zoology or natural history, may be elected Corresponding Members.
- SEC. 15. Benefactors, Founders in Perpetuity, Founders, Associate Founders, Patrons, Life Members, Honorary Members, Permanent Fellows, Fellows, and Corresponding Members shall be exempt from annual dues.

ARTICLE VII.

PRIVILEGES OF MEMBERS

- SEC. 1. A member's ticket admits the member and his immediate family to the Park on reserve days, and to all lectures and special exhibitions, and may be used by the member's immediate family, and shall be good for the current year.
- SEC. 2. Admission tickets to the Park and Aquarium on reserve days are issued to members for distribution, and are good for the current year.
- SEC. 3. Each member of the Society is entitled annually to a member's ticket and to ten admission tickets.

- SEC. 4. Each member shall also receive one copy of the catalogue or handbook, the report and official publication of the Society, and shall have all the privileges of the Library and Members' Building.
- SEC. 5. No member shall be entitled to the privileges enumerated in this Article unless his annual dues shall have been paid.
- SEC. 6. The Life Members shall have all the privileges of members and ten additional admission tickets.
- SEC. 7. Benefactors, Founders in Perpetuity, Founders, Associate Founders and Patrons shall have all the privileges of Life Members, and shall in addition receive copies of all scientific works published by the Society.
- SEC. 8. Any member who shall fail to pay his annual dues within three months after the same shall have become due, and after notice of thirty days, by mail, shall cease to be a member of the Society; subject, however, to reinstatement by the Board of Managers or Executive Committee for good cause shown.
- SEC. 9. Any person elected to membership who shall fail to qualify within three months after notice of his election shall be considered to have declined his election; but such term may be extended by the Board of Managers, or Executive Committee.

ARTICLE VIII.

FINANCES

- SEC. 1. The fiscal year of the corporation shall be the calendar year commencing January 1st and ending December 31st.
- SEC. 2. Neither the Society nor any of its Managers or Officers shall contract any debt which, with existing debts, shall exceed in amount the funds then the Treasury, except to meet expenditures for which the City is liable, and for which the Society will be reimbursed by warrants from the Comptroller's office.

ARTICLE IX.

AMENDMENTS

SEC. 1. Amendments to these By-Laws may be proposed, in writing, at any meeting of the Board of Managers, and adopted by unanimous consent of the Managers present, or if such proposed amendment shall fail to receive unanimous consent, the Secretary shall, with the notices of the next meeting, send a copy of it to each Manager and state that it will be brought up for action at such meeting, when it may be passed by a majority vote.















